



Benchmarking Canada's Agri-Food Sustainability Leadership | A Roadmap

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FOR INFORMATION
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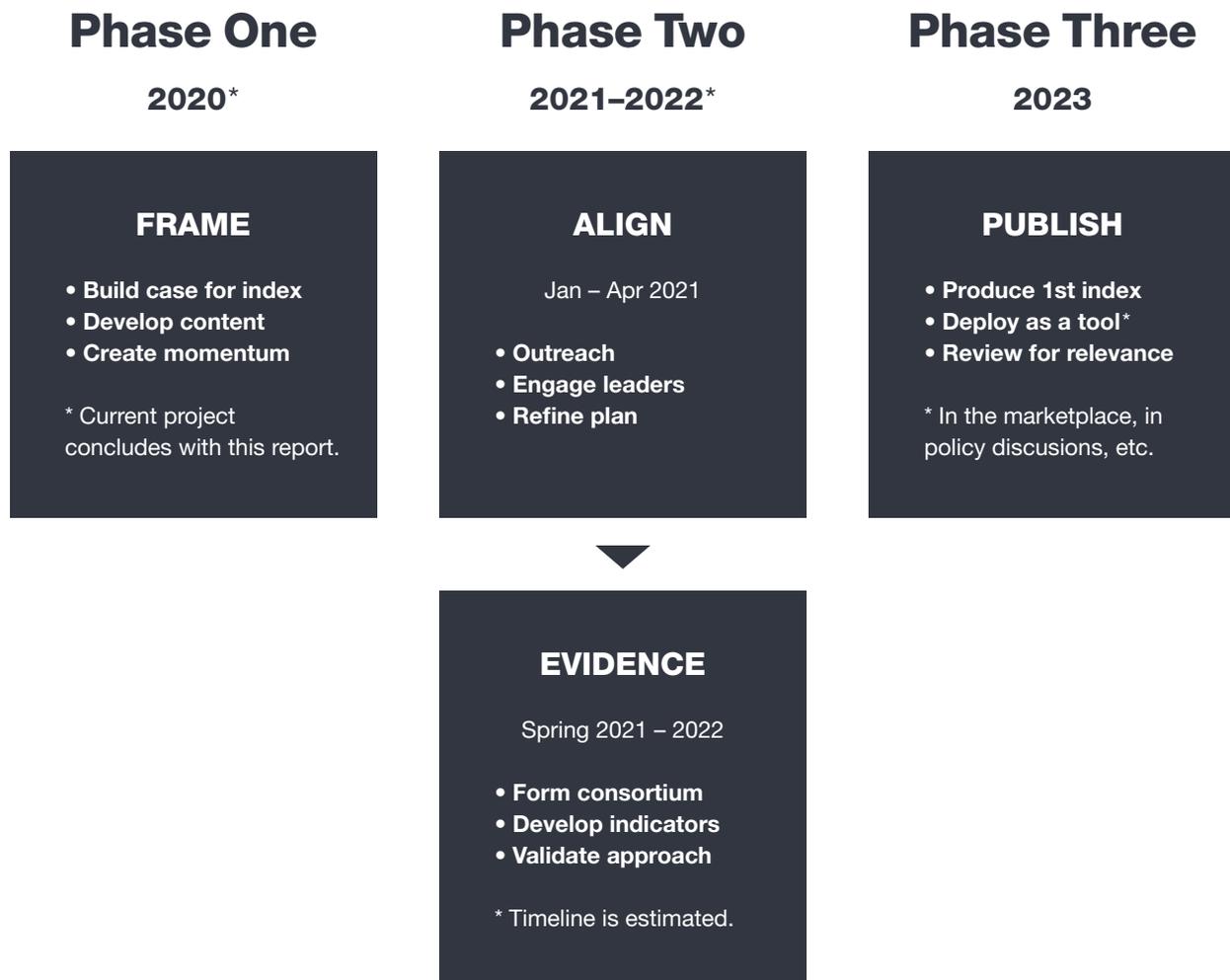
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PURPOSE OF THIS WORK

A diverse coalition of twenty-two partners (see cover page) have come together to consider the need for developing a national sustainability benchmark for Canada's agri-food sector.

By concluding phase one of a broader plan to advance this matter (diagram below), this report focuses on examining why better benchmarking is needed, how it can be expressed and what value it confers to society, sector competitiveness and policy-making.

This current work will be used immediately to engage even more Canadian agri-food stakeholders, setting the stage for phase two to proceed, if embraced by agri-food leaders.



SUMMARY

Canada is among the most sustainable, safest and responsible food leaders – but it needs to be increasingly demonstrated to consumers, customers, investors, shareholders, regulators and to our trading partners. *Sustainability* is being redefined. As the world grapples with profound social, health, environmental and economic challenges, how the global and Canadian agri-food sector manages and discloses these issues is a commercial and societal priority. Canada's key competitors (and our customers) are organizing. Countries are expressing competitive advantage in terms of their respective sustainable food value propositions. Some are putting new trade rules in place based on a view of sustainable food practices which may not always conform to this country's agricultural context.

Twenty-two diverse partners believe that a Canadian-developed and globally-relevant sustainability benchmark has the potential to be a key tool to champion Canada as a vital, responsible and leading agri-food provider in a world seeking to transform how food is produced and supplied.

Over several months in 2020, this group embarked on a process that engaged hundreds of stakeholders from here and abroad, oversaw research and synthesized their observations and ideas, culminating in this report. It was revealed that benchmarking is a means to affirm trust in Canada's food system. As well it is a means to add business value and enhance competitiveness, and inform policy and strategy. But this work revealed that Canada is leaving value off the table. Better indicators could show what the sector is doing, for example, to further reduce its environmental footprint. Canada is also foregoing an untapped opportunity to better connect its data gathering capacity to respond.

This work outlines how food system stakeholders can decide on a set of pertinent indicators among four blocks – environmental progress, health and safety, well-being and economic viability – that would, ultimately, lead to the publication of an index.

1. A blueprint outlines a way forward, guided by shared principles. Working pre-competitively and inclusively, the work would be co-led by industry (including producers) and others. A neutral and authoritative entity or centre, co-funded by industry and government, would compile and prepare the index, validated by experts here and abroad. An initial index framework is offered to focus the dialogue.
2. While operational details remain to be decided (in phase 2), the process envisages linking key indicators already in play from across the sector to Canada's national statistical capacity to provide a high-level view of Canada's leadership, performance and progress. Data systems would need to be leveraged within the private sector and nationally and ensure the index remains relevant.
3. The process includes using case studies to develop science-based indicators for Canada's agri-food context and to meet marketplace and national and global commitments, such as the UN Sustainable Development Goals and relevant global metrics. (Our work explored that potential by preparing two initial case studies on GHGs/sequestration and biodiversity. These revealed new indicators that could better measure and reflect Canada's actions and pointed to policy issues to enable change.)

The proposed approach will surely need refinement. More stakeholders will need to be consulted. However, the country's agri-food system faces a choice: ***Does Canada want to be a leader or follower at this unprecedented time for society, the planet and the economy?***



CATALYZING CANADA'S FOOD AMBITION

In the global race to meet net-zero emissions and other urgent global goals, such as halving food waste and improving food security,¹ three things are clear. First, global agriculture and food are expected to play an even greater role in helping to achieve these goals. Second, agri-food will increasingly need to show (and validate) its progress in doing so. And, third, leveraging these actions and insights will be the basis to create more commercial value for producers and the food sector and accelerate the benefits for society and the planet going forward – the much desired *win-win*.

Canada can punch above its weight in delivering on this promise. The sequestering power of Canadian agricultural soils alone, for instance, will be essential to fight climate change even more. Monetizing this considerable potential – and adding other value from meeting an array of global goals – while improving societal outcomes requires many actions. One catalyst could achieve this and simultaneously enable Canada's food ambition long into the future.² Better benchmarking the country's agri-food performance and leadership across its supply chains could position the country to exercise its strengths and advantages few others could match. The context to do so is changing.

THE RISE & BREADTH OF BENCHMARKING

With global food production widely deemed to be unsustainable,³ the scrutiny is increasing and unparalleled. Global indices are assessing countries and food companies, alike. (These do not always present a complimentary or accurate view of



Canadian agri-food practices; see Appendix E for more on global indices.) Advocacy NGO scorecards rank agri-food players on various factors, such as the environment, nutrition, food safety, animal care and human rights. By assessing these same matters (so-called non-financial risks), institutional investors and banks are redefining materiality. Such integrated reporting is going mainstream, boosting transparency and ushering in *sustainable finance*. This could be a game-changer. Banks are starting to offer large borrowers lower rates for achieving sustainability targets.⁴ Such decisions are being facilitated by new disclosure standards and ratings.⁵ These insights are also being used by food companies directly to track their environmental exposures and report to shareholders and their consumers.⁶

Benchmarking is fast evolving. Interest is building in *integrated accounting* and more uniform disclosure

¹ In reference to the UN Sustainable Development Goals and the UN initiative race to zero to achieve net zero carbon emissions by 2050; <https://bit.ly/396V5bl>.

² That ambition was recently expressed for the shorter term: “By 2025, Canada will be one of the top five competitors in the agri-food sector, recognized as the most trusted, competitive and reliable supplier of safe, sustainable, high-quality agri-food products and an innovator in value-added products to feed the dynamic global consumer.” *A Report from Canada's Economic Strategy Tables*, Innovation, Science & Economic Development Canada, 2018.

³ Among many examples, The World Economic Forum declares, “Global food systems today are unsustainable for both people and the planet” (2018).

⁴ Maple Leaf Foods became the first Canadian company to receive sustainability-linked credit terms. BMO Press Release, Dec. 11, 2019; <https://bit.ly/2J9uP5D>.

⁵ John Uhren, Head, Sustainable Finance, Products & Strategy, BMO Financial Group, presentation, project webinar, Nov. 18, 2020.

⁶ Bridget Schrepf, Manager, Sustainable Food Systems, CDP, project webinar, Sept. 16, 2020. (CDP scores over 9,600 companies, 800 cities and 120 regions.)



reporting of these non-financial indicators, a matter that the OECD sees as “urgent” (see Appendix B, on investor-related factors). The call for standardizing business risk measures is growing. Other work is unfolding. At the UN, an emerging global dialogue is underway to better account for externalities of food production in pricing.⁷ The UN’s global food summit in 2021 is expected to pivot around “what is a sustainable food system”; answering this could shape how national performance is assessed.⁸ Finally, Covid-19 is raising the bar for *everyone*. The pandemic is underscoring the need to show how connections between health, environmental and economic actions enhance resilience. All this is affirming a view that measuring Canada’s sustainability performance is being shaped by a host of developments with many being driven from abroad.

COMPETING TO RESPOND

Countries and their food systems are positioning themselves as sustainability leaders. Nations and regions are setting domestic rules and terms of trade based on their visions of what sustainable and responsible food production looks like.⁹ The EU is about to embark on *green deal diplomacy* to advance its principles abroad and imbed this thinking into trade agreements. Certification is already required to gain and maintain market access for some products.¹⁰

Countries are adapting their strategies to ensure market access and affirm their brands while driving up agricultural and food processing productivity domestically. New Zealand has been developing a Sustainability Dashboard to track its food performance. “Future-proofing resilience of New Zealand agriculture” is in response to consumers in foreign markets increasingly requiring verification of New Zealand Inc.’s “clean-green assertions.”¹¹ With some 90% of Ireland’s food production being exported, it “pioneered” the world’s first national food and drink sustainability program with measurable sustainability targets across all its supply chains.¹²

Global sustainability standards are enabling countries and companies, alike.¹³ For instance, GRI’s standards have been referenced by 67 countries and 75% of the world’s largest 250 companies. For Canada, developing domestic performance metrics needs to consider how the bar is being set elsewhere.

Target-setting is being widely deployed to respond to the changing marketplace.¹⁴ There are so many announced outcomes-based targets (on environmental priorities, alone) that this project

⁷ This is about “true cost accounting”; Lauren Baker, Director of Programs, Global Alliance for the Future of Food, presentation, project webinar, Nov. 18, 2020.

⁸ This is an economy-wide issue: “there is no agreed-upon macroeconomic indicator of sustainability,” *The Changing Wealth of Nations 2018*, The World Bank.

⁹ Luis Carazo Jimenez, Head of Unit, DG Agriculture & Rural Development, European Commission, presentation, project webinar, Nov. 18, 2020.

¹⁰ Canada’s agri-environmental performance indicators certify canola to gain access to European and U.S. biofuel feedstock markets; <https://bit.ly/2JZTEc>.

¹¹ *Synthesis Report*, 2019, New Zealand Sustainability Dashboard Project; <https://www.sustainablewellbeing.nz/nzsd-synthesis>.

¹² Origin Green, Bord Bia (the Irish Food Board); <https://www.origingreen.ie>.

¹³ GRI (formally known as the Global Reporting Initiative) will release a new Agriculture and Fishing Program in 2021. Margarita Lysenkova, Manager, Standards, GRI, presentation, project webinar, Nov. 18, 2020.

¹⁴ More and more consumers are interested in how their food is produced which is helping to drive such corporate goal-setting. For Canadian consumers, environmental sustainability is increasingly non-negotiable. *2020 Public Trust Research*, Canadian Centre for Food Integrity.



published a background report on the matter (see Appendix C and D). For instance, to reduce total on-farm emissions, including getting to net zero goals, producers are “counting everything”; they see this as the route to improve their production efficiencies, reduce operating costs, etc.¹⁵ Fulfilling their announced targets, food processors and retailers are innovating to reduce food waste, introducing less-impact packaging that still maintains food safety and quality, and offering a growing array of responsibly-sourced food items to consumers (and labelled as such). As well, such pledges require working more fully with supply-chains to deliver on commitments.¹⁶

American agri-food is getting organized, pivoting on its new SDG¹⁷ strategy, including positioning itself to be carbon positive by 2035.¹⁸ The

Netherlands wants to be a “circular agriculture” leader.¹⁹ A consortium of food companies have launched One Planet Business for Biodiversity (OP2B). It is developing new targets to “take bold action to protect and restore cultivated and natural biodiversity within their value chains.”²⁰

Fortunately, a number of Canadian commodity sectors and food companies are at the forefront of change – and their responses are world-class. For example, Canada is the first country in the world to deliver Certified Sustainable Beef through the supply chain²¹ and no-till agriculture is a leading innovation (see Appendix D).²² But the signals are clear. This rapidly emerging food world requires a fulsome Canadian response. Canada’s agri-food sector is not aligned. Canada has the opportunity to develop a more integrated picture of its sustainability and quality credentials from farm to retail and show that it is among the most environmentally sustainable, safest and responsible world leaders.

POSITIONING CANADA

Canada ought to be a global leader in demonstrating its progress on agri-food issues that matter to consumers, customers, regulators, shareholders and investors. Canadian agriculture has among the lowest environmental footprints anywhere.²³ Building on its track record of world-leading agronomic, food safety, animal health practices and good governance reputation, Canada is well-positioned to validate such leadership.

Data systems (proprietary or shared across a consortia of players) are key to trace and verify

¹⁵ In reference to U.S. dairy’s net-zero objective; Robynne Anderson, President, Emerging Ag, presentation, project webinar, April 16, 2020.

¹⁶ Engaging the value (or supply) chain is business-essential. For instance, the bulk of most food companies’ environmental impacts and exposures are attributable to their supply chains. 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. *CDP Supply Chain: Changing the Chain*, CDP Supply Chain Report 2019/20; <https://bit.ly/3m1HXs4>

¹⁷ “SDG” refers to the UN Sustainable Development Goals, 17 goals to transform the global food system by 2030; see Appendix A on priority SDGs. Erin Fitzgerald, CEO, U.S. Farmers & Ranchers in Action; David Bennell, Manager, Food & Nature, WBCSD, presentations, project webinar, Nov. 18, 2020.

¹⁹ Minister of Agriculture, Nature and Food Quality, Netherlands, 2018.

²⁰ One Planet Business for Biodiversity coalition includes Loblaw and McCain Foods.

²¹ Brenna Grant, Manager, Canfax/Canadian Cattlemen’s Association, presentation, project webinar, Sept. 16, 2020.

²² *The development and adoption of conservation tillage systems on the Canadian Prairies*, International Soil & Water Conservation Research, March 2014. As well, the “4R” agronomy program is a Canadian-developed standard recognized worldwide for good fertilization practices.

²³ Crop/livestock production contributes just over 8% of Canada’s overall GHG emissions; global agriculture is some 23% of world’s GHG emissions. *Efficient Agriculture as a Greenhouse Gas Solutions Provider*, CAPI, 2019; <https://bit.ly/2J4pOv6>.



sustainable practices (insights that confer producer premiums, lower costs and food company claims²⁴ (see “Benefits” section, ahead). Linking-up and leveraging such platforms (pre-competitively) and connecting with Canada’s national statistical capacity (perhaps through some form of collaborative *data hub* or centre) is an untapped opportunity to enable national benchmarking.

But leadership is being redefined. People increasingly want to know how achieving economic, environmental and societal outcomes go hand in hand and what is being done when falling short.²⁵ Collaboration is required to demonstrate such improvements, catalyzed by a shared view of food system performance measurement.²⁶ Better benchmarking can also be used proactively to inform policy, enhance competitiveness and project a stronger presence on the international stage. If done right, Canada has the potential to become a recognized global model for taking such an approach.

Canada’s agri-food leaders face a choice – and it’s about enabling the country’s agri-food ambition at this unprecedented time for society, the planet and the economy.

Does Canada want to be a leader or follower in this new food world? Presenting the country’s agri-food credentials and leveraging its insights is the opportunity.

Or, does Canada forego the value from doing so and defer to others from outside the country to largely shape its agri-food narrative?

²⁴ Two presentations delved into the benefits and data systems capacity: Bronwynne Wilton, Project Lead, Canadian Agri-Food Sustainability Initiative (CASI) and Michael Crowe, Board Member, Canadian Agri-food Automation and Intelligence Network (CAAIN), presentations, project webinar, Sept. 16, 2020.

²⁵ Social priorities are gaining greater prominence, notably by addressing working conditions and labour relations; CRSC is now developing a code of practice, including health & safety; Susie Miller, Executive Director, Canadian Roundtable for Sustainable Crops, presentation, project webinar, Sept. 16, 2020.

²⁶ Indicative of the need for collaboration: The poll question from the Nov. 18 project webinar posed this question, “What will catalyze a country’s food system to meet global goals & marketplace commitments?” The #1 response was “better collaborations among producers, agri-food companies & others” followed by “more innovation, science & technology” (#2) and “better metrics: comparability & consistency” (#3).

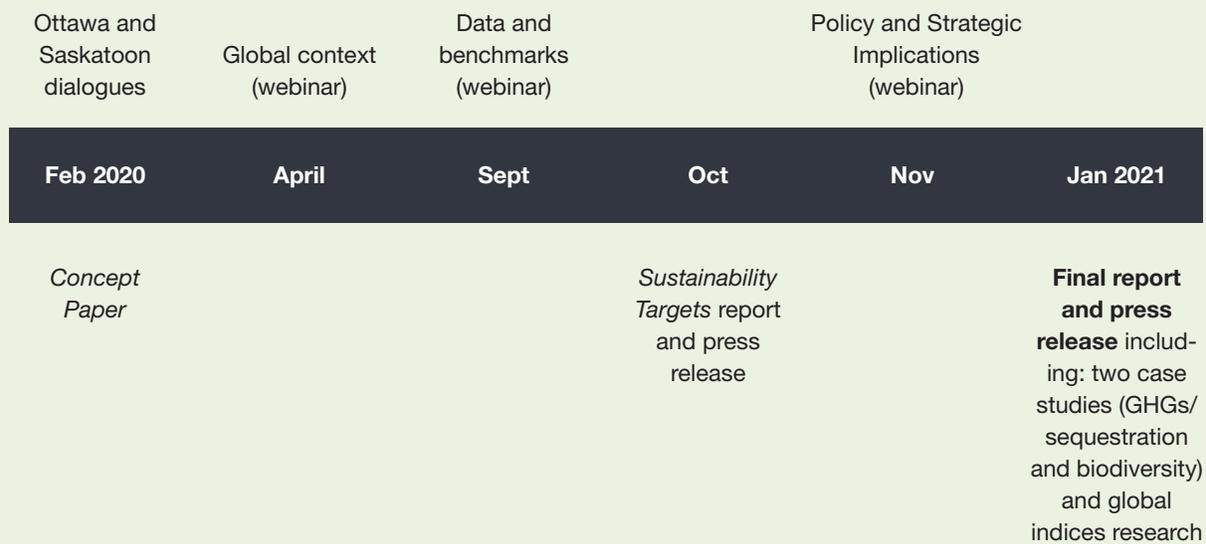
MOMENTUM IS BUILDING

This idea of benchmarking Canadian agri-food is gaining momentum:

- With the support of twenty-two partners (see Appendix G), the project reached out to hundreds of stakeholders from here and abroad in a series of well-attended webinars and dialogues in 2020 (refer to diagram on phase one, below, and see Appendix F for the list of participating organizations).
- Research published in October 2020 documented how benchmarking agri-food’s environmental footprint is gaining traction.
- Partners relied on case studies to assess the current state of metrics and potential for better measuring two issues, greenhouse gases (GHGs) and sequestration, and biodiversity. This work revealed the value of doing so. Potential new indicators are suggested to better present Canada’s progress. The work also offered a lens to consider some pertinent policy issues. (These two case studies are separately published.)
- Global organizations are recognizing this Canadian initiative. During the webinars, key players encouraged Canada to lead and proceed.
- Many Canadian stakeholders support better benchmarking²⁷ at a national level provided that it is credible, practical and impactful.

Phase One | Process

Outreach, Research and Reports



The *Sustainability Targets* report and webinar recordings and presentations are available online with selected partners

²⁷ For example, one of several non-scientific webinar polls recorded that 86% of participating stakeholders say that Canada needs somewhat or significantly better measures and benchmarks going forward; project webinar, April 16, 2020.

BLUEPRINT TO TAKE ACTION

To seize upon this opportunity, the project presents a blueprint for food system leaders to advance this work and benchmark Canada's agri-food system. (Items are elaborated upon further below.)

- A *framework* presents four sustainability priorities (see diagram). Each block includes several benchmarks and a variety of sub-indicators.
- A set of *principles* guides index-development by stakeholders. These were inspired by producer and industry-led initiatives and from outreach.
- A *steering group*, co-lead by industry, is required to advance the process with representation from the broader food system and adjacent sectors.
- A funded *organization or partnership* needs to manage and maintain the metrics process. It should be authoritative, neutral and representative. This entity or centre would work with industry and other organization's

data/technology platforms and with Canada's statistical capacity to develop the metrics.

- A series of *steps* ensures that selected indicators are fit-for-purpose for Canada's agricultural and food context and align with global goals.
- The work introduces a *case study model* to assist with indicator-development. Bringing diverse players together to work pre-competitively is key to develop clarity on what needs to be measured and the gaps. (While summarized below, the two cases are separately published.)
- An *independent expert group* made up of domestic and global experts would validate the basket of indicators.
- An initial set of benchmarks – an *index* – would then be published and reviewed over time to ensure its relevance.



BENEFITS

Benchmarking, itself, is not a panacea but it can be a key tool to add value and express Canada’s advantages in three broad ways:

1 Showing dual value

Sustainability starts with producers. By responsibly producing more with less, greater productivity and resilience contributes to their economic viability, a similar principle to drive up commercial value for companies across the supply chain. Demonstrating how these outcomes improve people’s well-being and enhance ecosystems is essential to build trust, affirm the brand and meet food expectations (see examples below).

2 Getting aligned

Collaborations across supply chains and with adjacent sectors are essential to identify the metrics needed to respond to this changing food world. As well, leveraging Canada’s data and technology platforms and aligning its innovation and research capacity will help validate performance, improve credibility and transparency of claims, and help monetize the proof points for the sector.

3 Informing policy & strategy

Benchmarking offers a lens for decision-making to advance domestic and global priorities. Metrics and indicators provide insight, offering a better understanding of what is enabling or hindering competitiveness or achieving better societal outcomes.

Portraying value for producers, companies and the supply chain – examples:

Premium for sustainable beef	Sustainable crops
Beef producers and others in the value chain are financially rewarded a quarterly premium per head by retailers and processors (e.g., McDonald’s and Cargill) for supplying Certified Sustainable Beef. An IT system (BIX) traces, shares and verifies the animal data (the chain of custody) among all players to ensure program integrity. ²⁸ McDonald’s labels the sustainable beef for its restaurant customers.	With the use of digital certification, sensor technologies and enhanced analytics, many crop producers employ best agronomic practices to boost productivity, optimize inputs and enhance carbon sequestration (these and other land management strategies also benefit biodiversity). The crop sector has flagged the importance of soil organic carbon change to demonstrate sequestration’s benefits. There are emerging opportunities to reward producers for doing so. ²⁹

A series of diagrams, commentary and appendices elaborate on the work completed in phase 1.

²⁸ Michael Crowe, Lakeland College & Board Member, Canadian Agri-food Automation & Intelligence Network, presentation, project webinar, Sept. 16, 2020.

²⁹ Susie Miller, Executive Director, Canadian Roundtable for Sustainable Crops, presentation, project webinar, Sept. 16, 2020, and the project case study flagged the importance of soil organic carbon (see GHGs discussion in Case Studies section, ahead) and it addressed the value of carbon offsets to producers in sequestering GHGs. As well, the case study on biodiversity briefly identified monetizing ecological services.

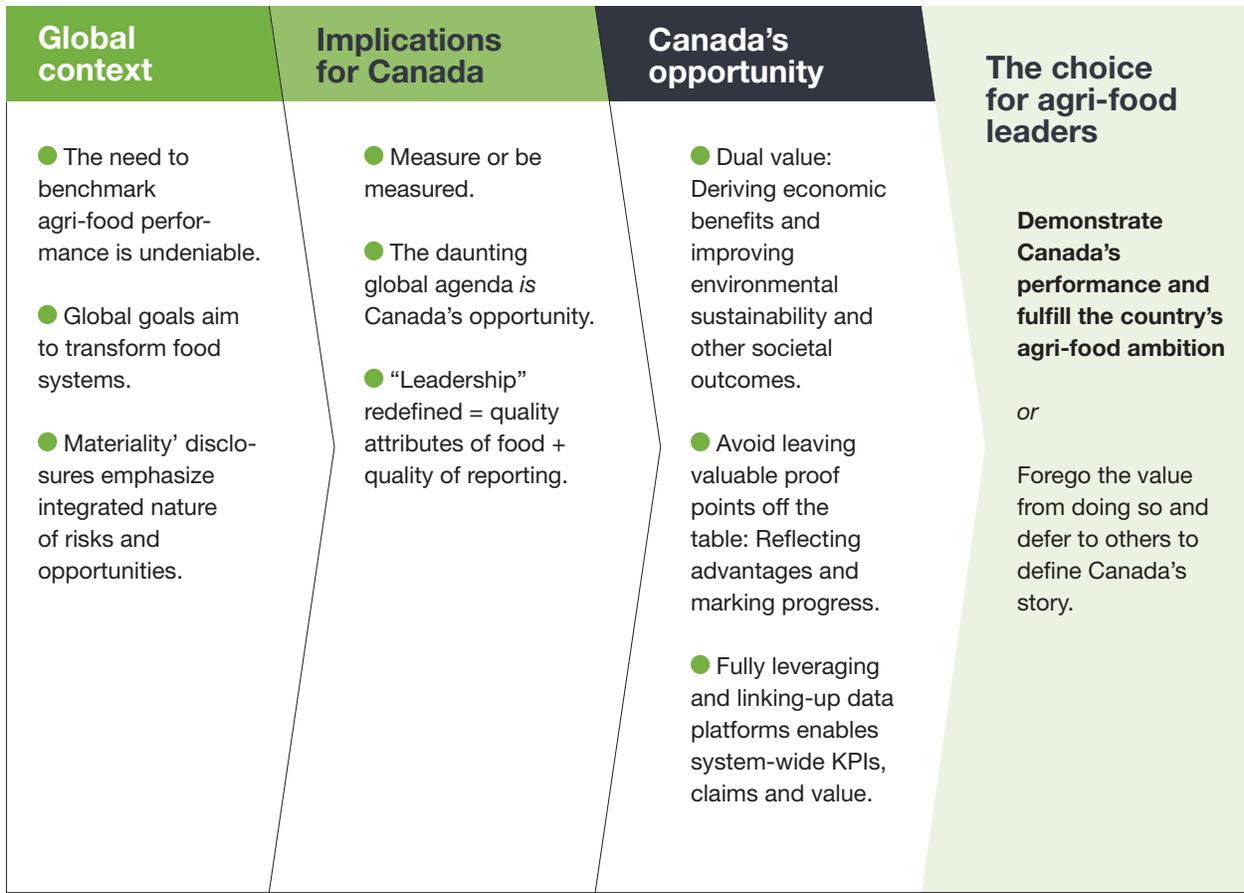


Overview of project



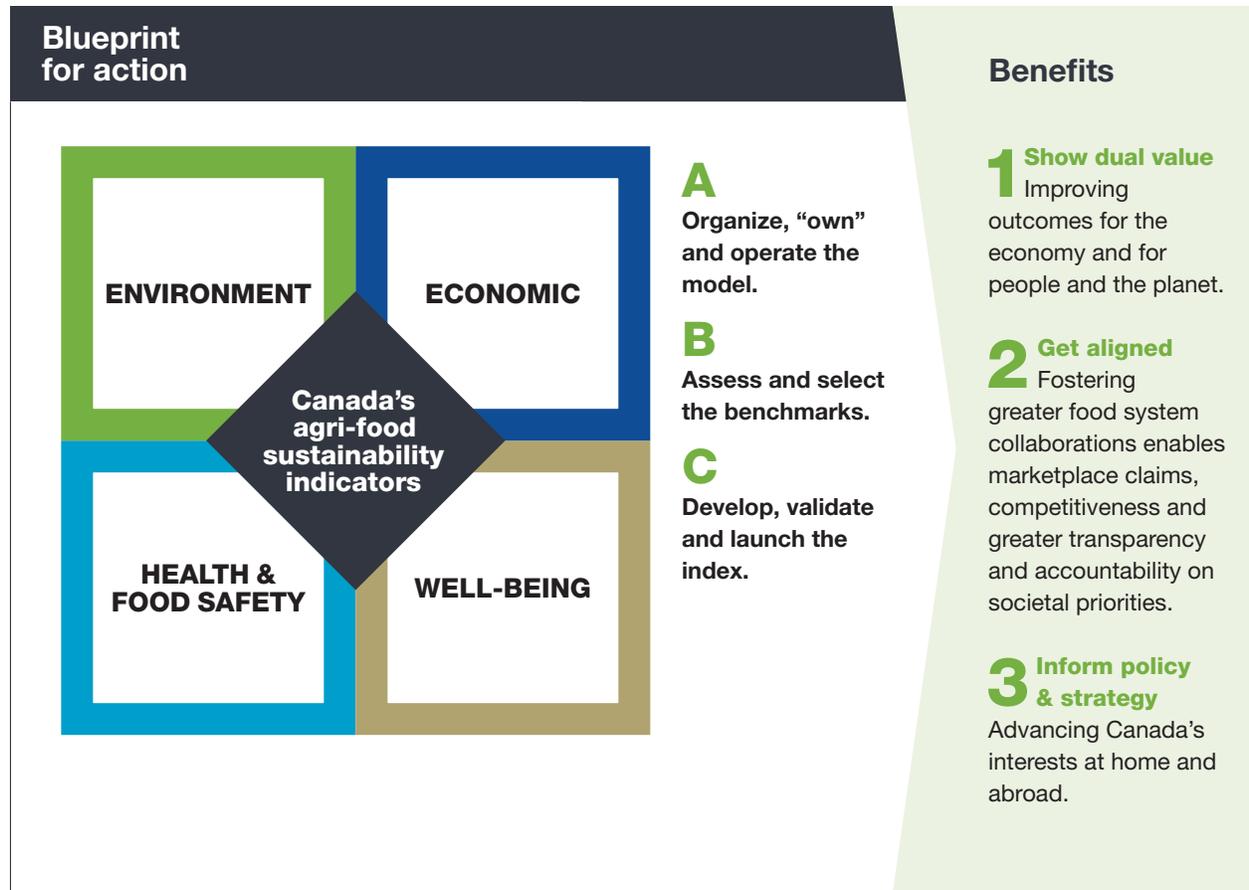
Part 1 | The need and opportunity to demonstrate Canada's agri-food performance

Benchmarking is a key tool to champion Canada as a vital, responsible and leading agri-food provider in a world seeking to transform how food is produced and supplied.



Part 2 | Developing the benchmarks

A collaborative process brings diverse stakeholders together to access and select the right benchmarks.

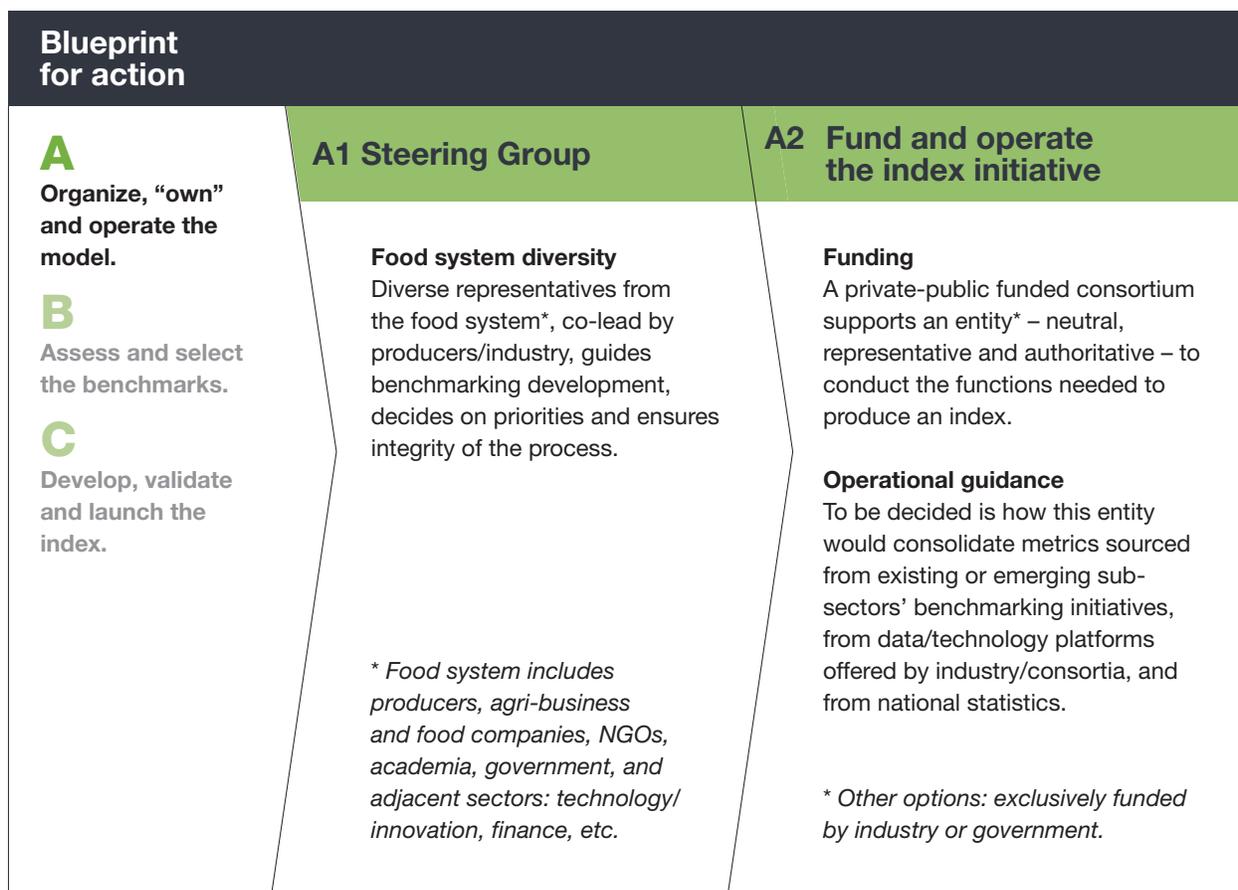




Blueprint for action



A | Organize, “own” and operate the model



How to frame-up a national index

What needs to happen

Principles guiding these steps

Urgency

Other countries are aligning to meet global goals. Canada’s agri-food system players are motivated to respond.

Collaboration

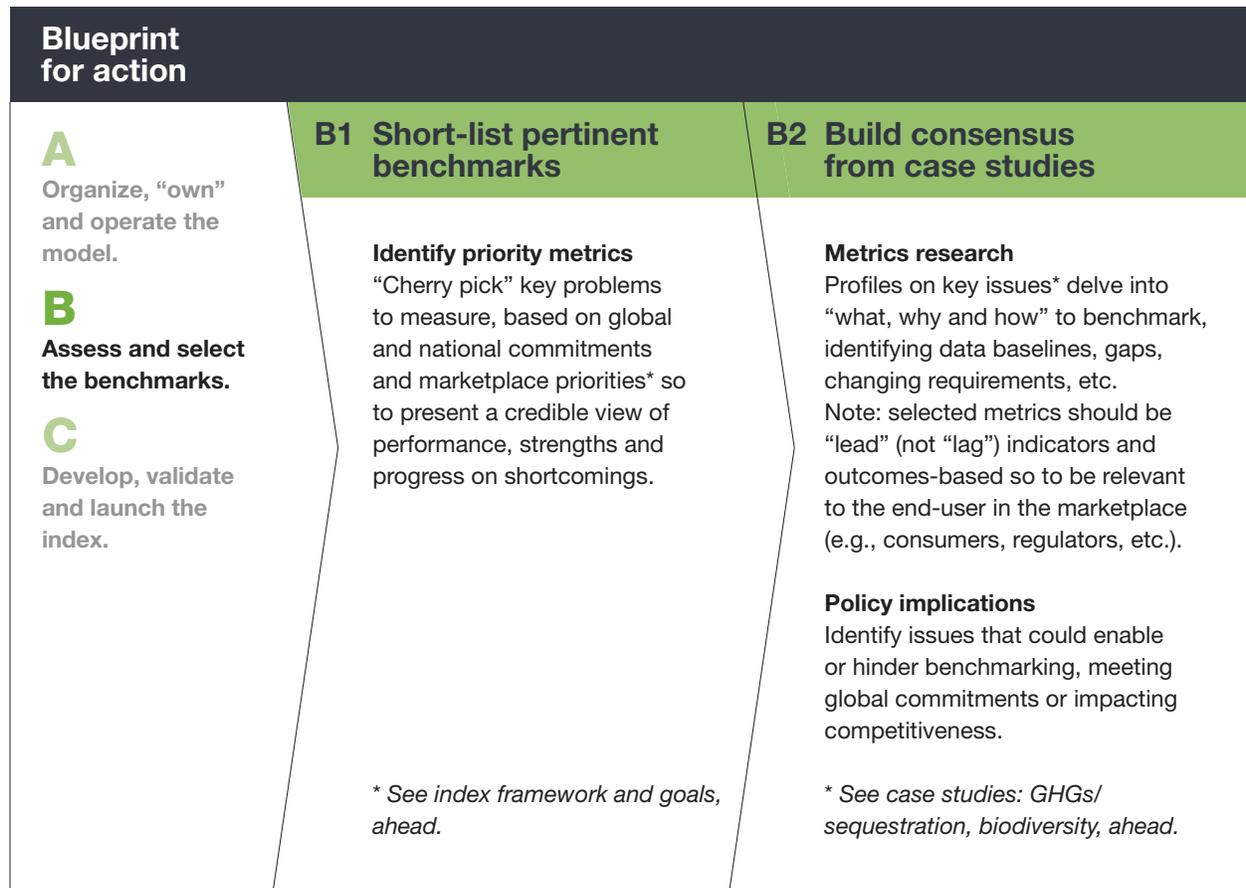
An inclusive food system group works pre-competitively to advance the index.

Shared understanding of “sustainability”

(a) Economic sustainability (viability) of farms and companies is linked to environmental and social sustainability.
 (b) Metrics on commercial viability are

informed by investor-driven disclosures of non-financial indicators: environmental, social, governance (“ESG”) factors. (See Appendix B for review of ESG.)

B | Assess and select the benchmarks



How to frame-up a national index

What needs to happen

Principles guiding these steps

Relevance to Canada

Indicators reflect Canada’s agricultural context.

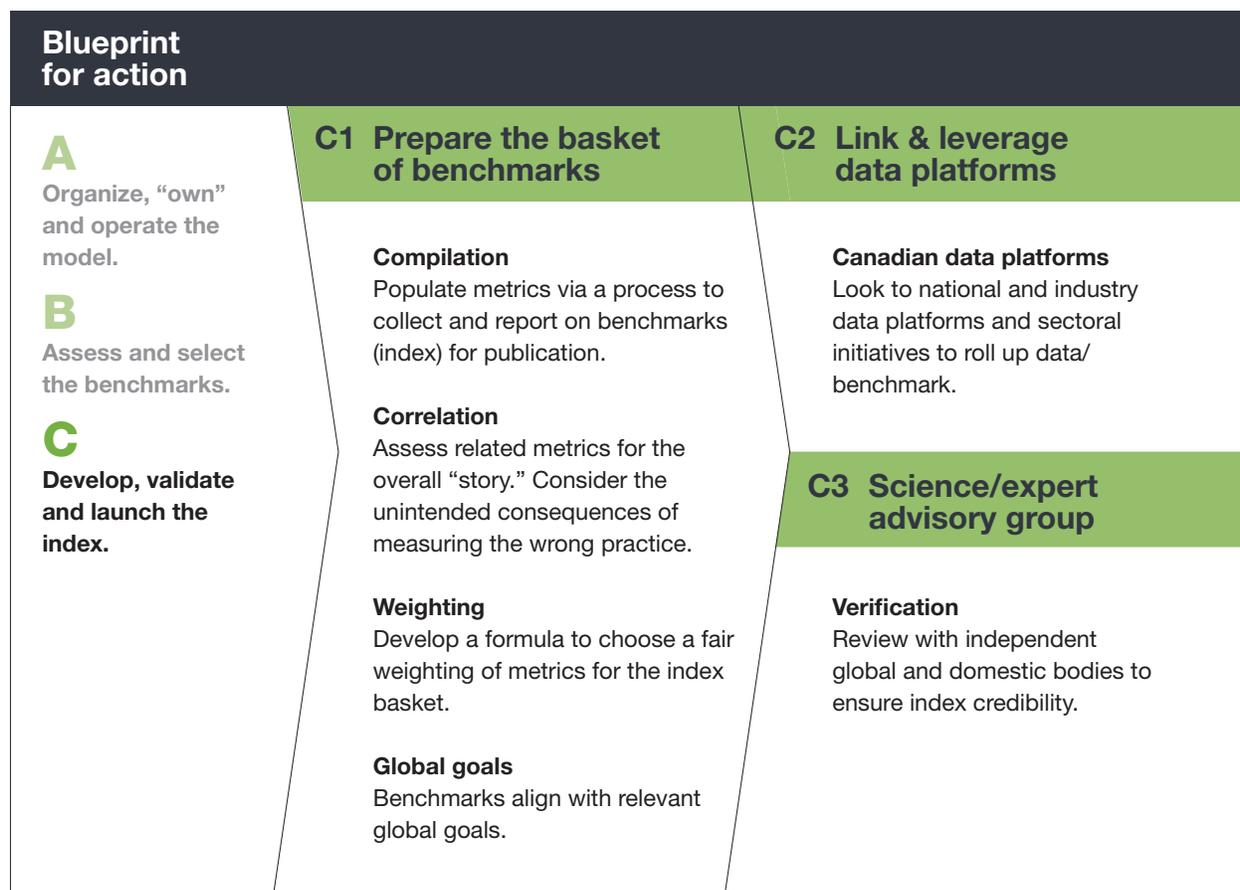
Credible

Indicators are science-based and/or consistent with global best practice.

Data limitations

Not everything can be measured. There are costs and trade-offs to metric selection.

C | Develop, validate and launch the index



How to frame-up a national index

What needs to happen

Principles guiding these steps

Materiality

Indicators measure what is intended.

Verifiable

Index is third-party reviewed.

Reviewable

Index is updated to meet emerging needs.

Transparent

Publish results and methodologies.

Index framework of benchmarks and indicators

The proposed index has four priority blocks:

- Environment
- Economic
- Health and food safety
- Well-being

Each is associated with a variety of indicators and sub-indicators (next page) and broadly cross-referenced to global goals.

High-level by design

Much like the design of global agri-food indices, this index presents a consolidated and selected view of performance. Details on individual commodities and companies are best left to their respective indices (see beef and crops examples further below, Appendix D) but pertinent metrics could be incorporated or rolled-up into the national index.³⁰

Bottom-up + top-down driven

Based on webinar and partner dialogues, developing a national index needs to be informed by national and global commitments and marketplace expectations (top-down) and by producer, sector and company requirements and initiatives (bottom-up).

Work-in-progress

These indicators are expected to be refined in the next phase of work with broader consultation. The process includes steps to ensure *the right* benchmarks are selected (e.g., materiality and practicality). Benchmarking has a cost and needs to be efficiently and effectively developed.



Informed by case studies

Case studies were deployed to review the current state of metrics, gaps and emerging issues for two key sub-indicators, GHGs/sequestration and biodiversity. Suggestions to improve what is being measured are captured in the index framework and summarized, ahead. Importantly, the case studies also reveal how a discussion on metrics prompts key policy issues to be raised, matters that can enable or hinder benchmarking. Some examples are flagged below.

³⁰ The metric-development process – which is detailed in the blueprint section – will be required to sort out many complex data issues; one such matter is considering whether and how to base the index on farm-level data (aggregated) or regional / national data available from public sources. Some global indices use surveys to fill the gap which is less than rigorous.

National Index on Agri-Food Sustainability Leadership (draft)

Global goals	Priority block	Indicators	Sub-indicators
	ENVIRONMENT	Climate change	<p>Existing sub-indicators:</p> <ul style="list-style-type: none"> • GHGs emissions for primary agriculture • Soil organic carbon; Soil organic carbon change <p>Proposed new sub-indicators suggested from case study:</p> <ul style="list-style-type: none"> • A complete supply chain-wide view of agri-food system GHG emissions is not available in sufficient detail but could be developed with some marginal additional work (some manufacturing company data is currently available) • Soil organic carbon change metrics can be better informed by nutrient stewardship practices (N₂O)
		Biodiversity	<p>Existing sub-indicators, in addition to a suite of agricultural sustainability indicators, biodiversity-specific track:</p> <ul style="list-style-type: none"> • Soil Cover Days; Wildlife Habitat Availability on Farmland • Insect habitat availability; Soil microbiology indicator (under development) <p>Proposed new sub-indicators suggested from case study:</p> <ul style="list-style-type: none"> • Genetic diversity; Habitat change / Marginal land ratio; Farmland birds; Wild insect pollinators
		Pesticides, etc.	<p>Note: This project phase did not allow for the development of case studies for these or other potential sub-indicators. This list is indicative only.</p> <p>Choice of sub-indicators needs to be determined by marketplace-driven expectations and requirements, national and global commitments and by choosing measures that reflect Canada's agriculture and food context.</p>
		Packaging	
		Water use	
Food waste			
	ECONOMIC	Resilience	
		Governance: SDG plans/ sub-sector	
	HEALTH & FOOD SAFETY	Food safety	
		Antimicrobial resistance	
		Zoonotic disease mitigation	
	WELL-BEING	Labour working conditions	
Animal care			

Selected UN Sustainable Development Goals generally associated with Canadian priorities. Goal 13 cross-links to the UN Framework for Climate Change Convention. Note: new biodiversity goals from the Convention of Biological Diversity are forthcoming. See Appendix A on SDGs.

Case studies





1 | GHGs/Sequestration Case Study

To many, measuring greenhouse gas emissions (GHGs) is the litmus test for environmental sustainability. As the deleterious impact of climate change unfolds, agriculture is often cited as a major contributor to global GHG levels. Canada is a major emitter of GHGs per capita (see box), yet Canadian agriculture has a relatively positive story to tell. Crop and livestock production contributes just over 8% of Canada's overall GHG emissions versus some 23% for global agriculture's emissions.³¹ But measuring progress on the "liabilities" (emissions) needs to be complimented by leveraging the "assets," sequestering carbon. The sequestration power of Canadian agricultural soils presents a huge opportunity. This case study reflects on these matters as part of an analysis for benchmarking agri-food.³²

A global index view of benchmarking

Taking action on climate change makes up nearly a quarter (24%) of Yale's Environmental Performance Index, a global assessment of environmental and biodiversity performance for 180 countries.³³ European countries dominate the list with 16 of the top 20 positions. Canada ranks 20th overall. On per capita GHG emissions, a sub-indicator, Canada ranks 168th. The only indicator for "sustainable agriculture" is nitrogen and Canada's ranks 13th on this measure.

Enhancing indicators provides better insights

- How sustainability is measured can result in different pictures. Measuring GHGs on a per capita basis portrays Canada, a large, thinly-populated and northern country, very differently than GHGs calculated as a unit of

production or emissions intensity. Canada has a lower GHG emissions efficiency vis-à-vis others which is a comparative advantage to leverage in the marketplace (claims).³⁴

- Canada has a scientifically robust system of monitoring change in soil organic carbon but requires better measurement to validate national estimates of soil organic carbon change – to more fully demonstrate agriculture's sequestration function, being "a carbon sink." Better scientific evidence is needed to demonstrate GHG mitigation progress from nutrient stewardship practices, notably reducing nitrous oxide (N₂O). Estimated region-based data for nitrous oxide is now collected but the full effect of better nutrient stewardship to reduce these emissions is unavailable. This presents a key opportunity to mark progress on an environmental priority and benefit producers.
- The GHG footprint of food production currently presents a limited view. Most of the available national data focuses mainly on direct emissions from producers. Proprietary and disaggregated food company GHGs exists but is not sector-wide. A more complete picture – an entire supply chain view – would need to include emissions associated with getting agricultural products to the final consumer, such as transportation, processing and retail. A pan-sector view is merited given the trend for supply chains to report upon their overall environmental footprints. Providing such a picture would need to be further explored in terms of feasibility/resources.

³¹ *Efficient Agriculture as a Greenhouse Gas Solutions Provider*, CAPI, 2019. Data is based on AAFC and IPCC data and is estimated and excludes on-farm energy use and energy used in the production of fertilizer. The UN indicates more recently that the food system accounts for 29% of global GHGs: <https://www.un.org/sustainabledevelopment/food-systems-summit-2021/>

³² *Greenhouse Gas (GHG) Emissions & Sequestration*, A case study of the Benchmarking Canada's Agri-Food Sustainability Leadership Project, 2021.

³³ *Environmental Performance Index*, Yale Center for Environmental Law and Policy, 2020. See also Appendix E.

³⁴ *Efficient Agriculture as a Greenhouse Gas Solutions Provider*, CAPI, 2019.



Benchmarking is a lens to inform policy

● The Federal Carbon Offset System

This program aims to provide credits to farmers who undertake projects that sequester or draw down greenhouse gas emissions, such as including livestock manure management, anaerobic digestion to produce biogas and improving soil organic carbon. Credits could then be sold to industrial facilities who exceed the emissions cap of their particular sector. Environment and Climate Change Canada has discussed measuring the uptake of these protocols by using “penetration rate.” This would show how common an activity is in a given sector, expressed as the percentage of total potential uptake by producers. By aggregating data on producer sustainability efforts, such as via emerging data platforms/initiatives, the proposed national index has potential to help measure the uptake of these protocols by Canadian producers. This in turn would help track progress on the sustainability targets identified by index members and communicate the progress of Canada internationally.

● Research and innovation priority

The breeding and selection of crops and forage grasses with deeper roots through modern breeding technologies and agronomic practices can enhance carbon sequestration in the soil

as well as improve on-farm productivity. The use of extensive collections of crop and forage biodiversity in long established seed stores can accelerate carbon sequestration strategies by accessing natural diversity to breed deeper rooting varieties. This largely unused resource contained in extensive global seed stores offers a rich new source of natural material to enhance crop breeding for many desired traits, including rooting depth and carbon sequestration. However, improved methods of measuring and modelling soil carbon, coupled with policy and market incentives, will be needed to stimulate innovation, deliver climate mitigating strategies and add value through both productivity and market accreditation of such green approaches.

2 | Biodiversity Case Study

With global biodiversity in crisis and its visibility rising, Canada's management of its ecosystems and productive land and seascapes presents an opportunity. Preserving biodiversity creates a win-win for society at large and conserving eco-systems, and, when responsibly used or managed, can add value in terms of increasing food production productivity and enhancing resilience. Global-leading continuous improvement among Canada's producers (supported by new research and adoption of new technologies, data and science innovation) creates a pathway for positive environmental change. As part of the case study review,³⁵ new indicators are proposed:

Enhancing indicators provides better insights

- Currently, biodiversity is being tracked by a weighted average of the Soil Cover Days and the Wildlife Habitat Availability on Farmland.³⁶ Plans are in the works to revisit insect habitat availability and an improved soil microbiology indicator.
- New: improving measurement of “below ground biodiversity”:
 - Tracking genetic diversity within crops will have increasing dual importance. Greater root biodiversity enables carbon sequestration and productivity, such as nutrient use efficiency.
- New: improving measurement of “above ground biodiversity”:
 - Given the complexity of measuring biodiversity, proxy metrics are meaningful, such as for habitat change, farmland birds and wild insect pollinators.

- Precision agriculture and related productivity improvements on farms (improving yields on highly-productive land) is enabling a greater proportion of marginal or unproductive farmland to be returned to nature which promotes biodiversity health. Measuring marginal land changes is a key indicator of viable and sustainable production systems.
- “Water biodiversity”
 - Given scope limitations, biodiversity in water systems (fresh water, oceans) was not considered; it should be included going forward.

Benchmarking is a lens to inform policy

- “Societal benefits vs. producers”

Looking to producers to assume full responsibility of improving ecosystems on a large scale that also benefit society raises an important public policy issue. Benchmarks that force this outcome would be an unintended consequence to avoid. Deciding how best to minimize agriculture's environmental impacts and the marketplace and policy options to compensate producers needs to be brought forward as a complimentary part of this future work as it is likely to be an enabling condition for success.

³⁵ *Biodiversity*, A case study of the Benchmarking Canada's Agri-Food Sustainability Leadership Project, 2021.

³⁶ *Environmental Sustainability of Canadian Agriculture: Environmental Indicator Report Series*, Report #4, Agriculture & Agri-Food Canada.



Summary





Conclusion and next steps

This project makes the case for benchmarking Canada's agri-food sustainability leadership and offers a blueprint to develop it.

The project reveals the need for better benchmarking.

Simply put, the domestic and global marketplace is expecting far greater transparency about how food is produced and supplied. Underlying this is an urgent need to reduce global agri-food's environmental impacts and improve other societal outcomes – and show it. This is shaping trade rules, finance terms, regulations, standards, and agricultural practices and product innovation all along the supply chain. Embracing transparency presents an enormous opportunity for Canada. This country can express clear advantages from validating and demonstrating that it is among the safest, most sustainable and responsible food systems, if not a leader.

It outlines how to develop an index.

Our consultations emphasized that benchmarking needs to be country-relevant and consistent with global commitments and marketplace requirements. A blueprint is offered to deliver on this. Diverse stakeholders can come together as part of a prescribed process to tailor a credible Canadian index. While this blueprint is expected to be refined, it sets the stage to move forward.

It shows the value from better benchmarking.

This report only touched on the range of possibilities that can be conferred from better benchmarking. It is a lens to inform decision-making. For instance, case studies proposed new indicators for measuring environmental and biodiversity outcomes that are pragmatic and necessary. These cases also flagged some related policy and research issues, such as how to deliver financial value to producers to improve the environment, a societal benefit. Value can accrue across the agri-food sector. Demonstrating responsible and sustainable practices can enable

market access, validate food claims, prompt innovation and meet even stiffer disclosure requirements. Our key competitors are setting bold goals to position themselves for a fast-changing food world. Sustainability benchmarking needs to shape Canada's competitiveness strategy and project its food leadership at home and abroad.

It identifies cautions and guidance.

Developing a national index must be bottom-up and top-down driven. This national effort needs to link-up with existing and emerging industry initiatives to measure and track sub-sector progress. The index needs to tap into Canada's data-gathering and systems capacity in the sector and at a national level to do so. Getting aligned is the untapped opportunity. National benchmarking needs to be co-led by producers, agri-businesses, processors and food retailers in close collaboration with food system leaders in government, academia, advocacy NGOs, innovation organizations, among others. The index cannot measure *everything* but it needs to be science-based, externally validated and reflect how international standards and evolving requirements (such as from the finance sector) are informing supply chain-wide metrics-development and disclosures. The blueprint process, governed by guiding principles, should allow for meeting these many needs.

It is prompting action.

This report will be used immediately to reach out to stakeholders. Not only is sector input vital, but catalyzing index development (the next big step described as phase two; see diagram of phases on page 4) needs to be driven by agri-food leaders across the food system. A plan to advance this work by the project partners is fast emerging.



Appendices



A | Informed by Sustainable Development Goals (SDGs)³⁷

UN SDGs (selected)



SDG 2: Zero hunger

2.1 End hunger: access to safe, nutritious and sufficient food.

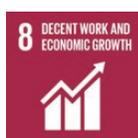
2.4.1 Proportion of agricultural area under productive and sustainable agriculture.

2.5 Maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species.



SDG 6: Clean water and sanitation

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.



SDG 8: Decent work and economic growth

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production.

8.8 Protect labour rights and promote safe and secure working environments for all workers.



SDG 9: Industry, innovation and infrastructure

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure...



SDG 12: Responsible consumption and production

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

12.6 Encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle.



SDG 13: Climate action

13.2.1 An integrated policy, strategy, plan which increases [a country's] ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production.

This SDG links to the UN Climate Change goal of reaching zero emissions by 2050.



SDG 14: Life below water

14.4.1 Proportion of fish stocks within biologically sustainable levels.



SDG 15: Life on land

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity, etc.

³⁷ <https://sdgs.un.org>. Canada is setting its related goals; e.g., a food loss and waste index is under development (SDG 12) and Canada is aiming to reduce carbon emissions by 30% by 2030 and achieve net zero by 2050 (SDG 13). Canada's SDG Data Hub: <https://www144.statcan.gc.ca/sdg-odd/index-eng.htm>

B | Informed by Investor Environmental, Social, Governance (ESG) Factors

Environmental, social, governance factors are used to assess materiality of corporate risk assessments and disclosures, identify business opportunities and enable financial and investment decisions. Companies that manage ESG well over the long term are expected to be the most profitable.³⁸ ESG factors vary, often tailored by sector and are guided by different standards. One criticism is a lack of comparability.³⁹ Lack of data and reporting standardization (consistency) is seen as inhibiting

the transition to a low carbon economy and ESG assessments.⁴⁰ Declaring this to be an urgent matter, the OECD calls for a new global disclosure framework.

The chart is indicative of ESG factors drawn from two ESG reports published by the World Business Council on Sustainable Development, including one specific to agri-food.⁴¹

ESG Factors (selected)			
Environment		Social	Governance
Biodiversity (and land-use change)	Resource sourcing	Compensation and benefits	Anti-corruption and bribery
Efficiency	Soil pollutants	Customer protection	Data security
Energy use	Treatment and discharge	Employee health and safety	Financial and business reporting
GHG emissions	Treatment, disposal and storage	Fair disclosure, marketing and advertising (product labelling and packaging)	Political contributions
Other effluents	Waste type	Health and safety (animal welfare; product safety)	Regulatory and legal challenges
Other emissions	Waste reuse/recycle	Other services and benefits	Risk management and internal control
Pollution incidents	Water quality	Recruitment and retention	
Renewables	Water reuse/recycling	Supply chain responsibility	
Resource use	Water use	Training and development	
Resource-reuse/recycling			

³⁸ John Uhren, Head, Sustainable Finance, Products & Strategy, BMO Financial Group, presentation, project webinar, Nov. 18, 2020.

³⁹ "Top pension funds demand better socially conscious data," *The Globe & Mail*, Nov. 25, 2020.

⁴⁰ *More efforts needed from governments, regulators and business to unlock full potential of sustainable finance*, Press Release, OECD, Sept. 29, 2020.

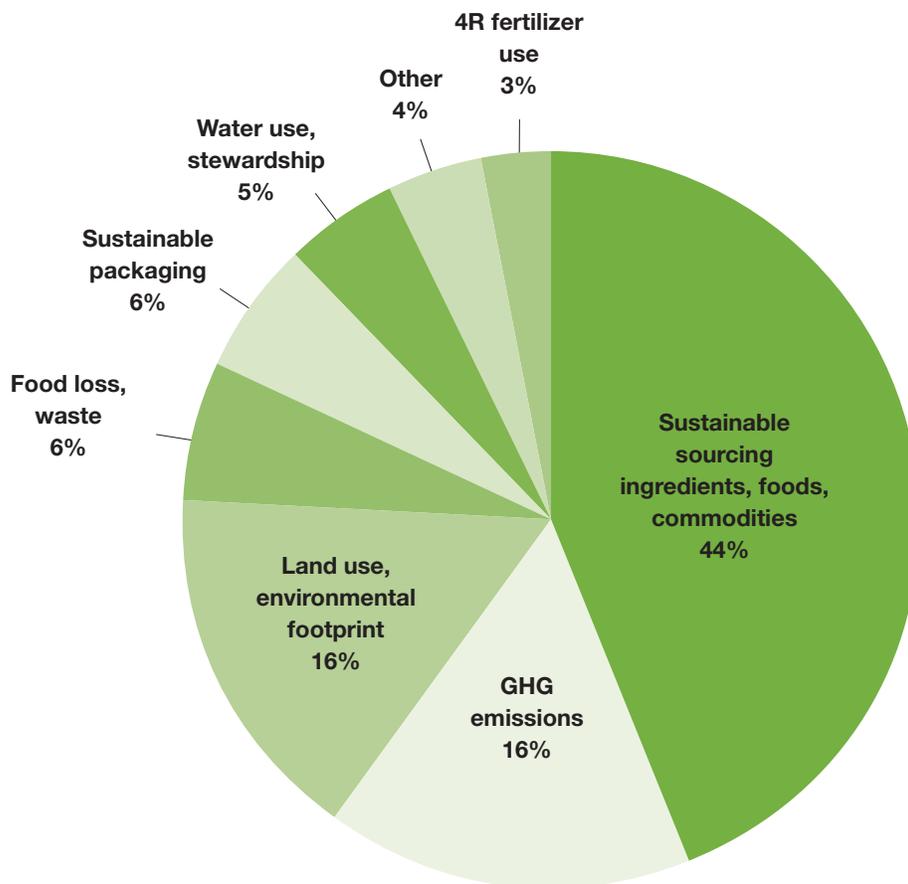
⁴¹ *Reporting Matters*, World Business Council on Sustainable Development (WBCSD), 2019, and *Materiality in corporate reporting; a White Paper focused on the food and agriculture sector*, WBCSD, GRI, Yale Initiative on Sustainable Finance, 2018: <https://bit.ly/339LRHV>

C | Informed by Food System Targets

In October 2020, this project published a report comparing environmental sustainability targets of over 50 entities across the food system.⁴² They represented 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.

The pie chart summarizes that activity. The UN SDGs were not included to avoid double-counting as they underlie many other targets. “Other” refers to specific targets with less than two mentions; e.g., crop protection use, fuel use, Dairy Farmers of Canada’s proAction®, etc. “Sustainable sourcing” is dominated by sustainable ingredient and seafood goals.

Sustainability targets expressed by organizations, companies and governments



⁴² *Agri-Food Sustainability Targets: A Selected Overview*, October 2020. Several partners linked this report and accompanying press release to their websites, such as: <https://www.fhccp.ca/News/View/ArticleId/518>

D | Informed by Commodity Sector Initiatives

Examples:

Sector goals (selected)

Beef:

Goals Identified in the National Beef Sustainability Strategy:

Overarching

GOAL #1 Build a stronger and more united Canadian beef sustainability community

Environmental

GOAL #2 Reduce the greenhouse gas footprint of Canadian beef per unit of product produced

GOAL #3 Enhance ecosystem services and biodiversity on lands managed by beef producers

GOAL #4 Enhance riparian health and reduce the water footprint of beef production

GOAL #5 Reduce post-harvest meat waste

Social

GOAL #6 Promote farm safety and responsible working conditions

GOAL #7 Promote excellence in animal care

GOAL #8 Support the further development, monitoring and dissemination of best practices regarding antimicrobial use

Economic

GOAL #9 Increase the financial viability of beef production in Canada

GOAL #10 Increase demand for Canadian beef through consumer awareness of sustainable beef production

Canadian Roundtable for Sustainable Beef (CRSB), 2020:
<https://crsb.ca/sustainability-benchmark/>

Crops:

12 Sustainability Reports

GHG Emissions and Air Quality	Soil Quality and Productivity	Nutrient Management	Land Use and Biodiversity
Pest and Agrochemical Management	Water Quality and Quantity	Waste and Pollution	Financial Viability
Community Relations	Labour Relations	Working Conditions	Work Safety and Security



Canadian Roundtable for Sustainable Crops (CRSC), 2020:
<http://sustainablecrops.ca/metrics-platform>

E | Informed by Global Indices

Many global indices are published to assess and compare countries (and companies) on food system sustainability performance, directly or indirectly. *Should Canada simply adopt a global index to track its own food system's performance?*

Canada fares relatively well on some indices and less so on others. The CGIAR and EIU indices rank Canada 3rd overall. (Section “a”, below, portrays the scope of CGIAR’s index.) Other indices (with varying themes) rank Canada 17th on competitiveness and innovation (GII), 20th on environmental sustainability (EPI), and 21st for measuring national action on the UN SDGs.⁴³ There are more indices in the pipeline. CGIAR has also started to publish an agrobiodiversity-specific index with plans to expand it.⁴⁴ Moreover, Canada’s performance in sub-indicators can vary widely from top-line results. These range from 1st to 106th (see chart below). (Further deepening the benchmarking trend, other global indices focus exclusively on food companies; section “b” portrays the breadth of a new food and agriculture index for companies about to be launched.)

A brief comparative analysis of four global indices of countries was undertaken for this project (see chart below).⁴⁵ It advised that “Though none of the indices is without merit, caution must be heeded before embracing an index as a yardstick measure of the sustainability of Canadian agri-food.”⁴⁶ It went on to say, “Global indices, no matter how robust they aim to be, are far from being ‘one-size fits all’ measures of sustainability.” One issue is that global indices account for the disparity between countries by using high-level

or proxy indicators. Relatedly, there can be issues with the weightings of indicators, their scientific soundness, and data timeliness, among other matters. This lack of consistency and comparability reveals the challenge of benchmarking nations. While such indices point to many common issues facing global agri-food, this project does not recommend adopting a global index in its entirety as a model for Canada.

The choice of metrics in these indices can present an altogether negative or inaccurate narrative of sustainability performance. For instance, Canada ranked 101st out of 129 countries in the Environmental Performance Index on tree cover loss, a proxy for land conversion due to agriculture. However, Canadian data has another perspective to share. While agriculture was the second-leading cause for deforestation in Canada (2017), the contribution is very minimal and the rates of deforestation due to agriculture has been on decline in Canada from 1990–2017, with rates dropping by over 50% in that period.⁴⁷ Perhaps more significantly is the likely reason for the global metric. The emphasis placed on deforestation in this and some other global indices surely reflects the preoccupation with tropical forest degradation in the Global South, a serious matter. Deforestation rates in Canada are not ordinarily seen as the trigger point for assessing sustainable agriculture here.

Other work has addressed issues with metrics. Global assessments can rely on per capita measures to assess GHG performance and pesticide use. In terms of GHGs, this can penalize Canada given its large agricultural sector and small population,

⁴³ Among other global indices that are available, the *Sustainable Food Systems Global Index*, 2019, is published by the Consultative Group on International Agriculture Research (CGIAR); *Food Sustainability Index*, 2018, Economist Intelligence Unit (EIU); *Environmental Performance Index* (EPI), 2020, Yale and Columbia universities; *Global Innovation Index*, 2020 (GII), World Intellectual Property Organization (WIPO); *Sustainable Development Report*, 2020, Cambridge University Press. See also the reference to the EPI and Canada’s ranking in the case study summary on GHGs, above.

⁴⁴ CGIAR’s first *Agrobiodiversity Index* (2019) assessed food system sustainability and resilience across an initial list of ten countries. The U.S. scored “below average.” Canada was not included in the sample.

⁴⁵ Chanditha Priyanatha, *Global Indices Research, A contributing paper* (to this project), Arrell Food Institute, University of Guelph, Dec. 2020.

⁴⁶ *Global Indices Research, A contributing paper*, Dec. 2020.

⁴⁷ Agriculture accounts for 35% of the 0.01% of the forests lost that year (*Global Indices Research, A contributing paper*, Dec. 2020).

a) Sustainable Food Systems Global Index, Consultative Group for International Agricultural Research (CGIAR)

This index reveals one array of indicators (“dimensions”) used to measure national agri-food performance. CGIAR’s index⁵⁰ assesses 97 countries.

Dimension	Sub dimension	Category	Indicators	Period	No. of countries
Environment	Air	Quality	Greenhouse gas emissions in total agriculture (gigagrams)	2000–2010	222
	Water	Use	Agricultural water withdrawal as percentage of total renewable water (%)	2000–2016	174
	Soil and land	Quality	Soil carbon content (as percentage in weight)	2008	202
		Use	Agricultural land as % of arable land	2000–2014	217
	Biodiversity	Wildlife (plants, animals)	Benefits of biodiversity index (0 = no biodiversity potential to 100 = maximum)	2008	192
			Crop diversity (calories diversity measured by Shannon Index)	2009–2011	177
Economic		Financial performance	Agriculture value-added per worker (constant 2010 US\$)	2000–2015	181
Social		Gender equity	Labor force participation rate, female (% of female population ages 15+)	2000–2016	184
Food and nutrition	Food security	Availability	Per capita food available for human consumption (kcal/capita/day)	2016	113
		Access	Food consumption as share of total income (% of total household expenditure)	2016	113
			Estimated travel time to the nearest city of 50,000 or more people	2015	245
		Utilization	Access to improved water resource (% of total population)	2000–2014	198
			Access to electricity (%)	2000–2014	211
		Stability	Price volatility index	2011–2017	194
			Per capita food supply variability (kcal/capita/day)	2000–2011	162
	Food safety		Burden of foodborne illness (number of cases)	2010	194
	Food waste and use		Food loss as % of total food produced	2016	113
	Nutrition	Diet	Diet diversification	2001–2010	165
		Overweight & obesity	Prevalence of obesity (% of the population, over 18 years of age)	2000–2014	191
Hidden hunger		Serum retinol deficiency	1995–2005	193	

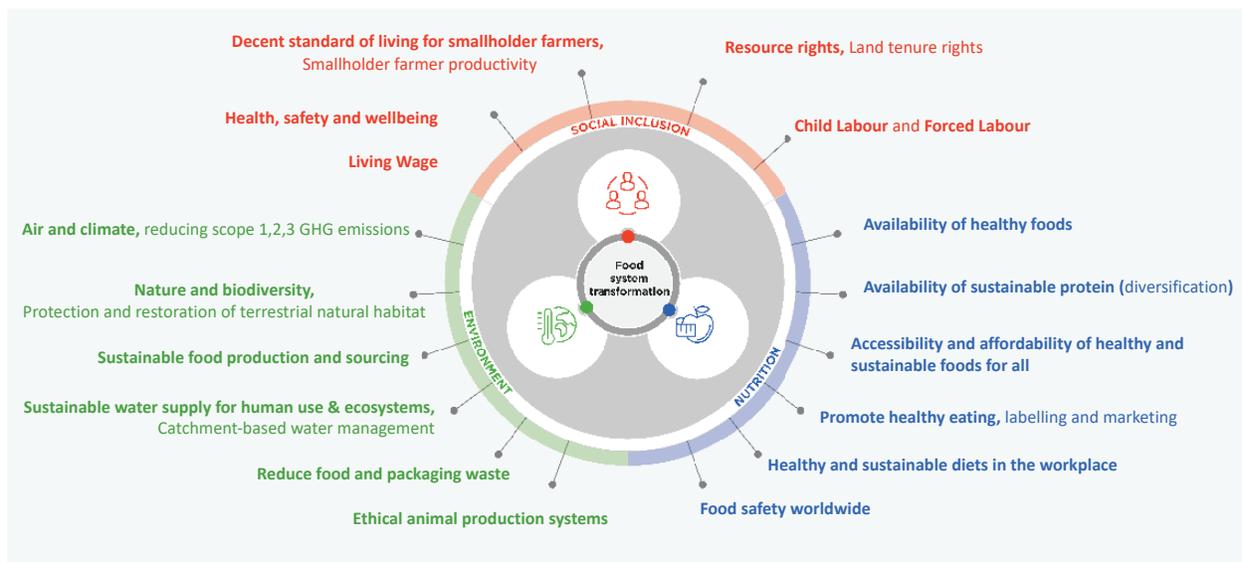
⁵⁰ Chris Bené, Senior Policy Expert, presentation, project webinar, Sept. 16, 2020, <https://cgspace.cgiar.org/handle/10568/106313> (2019).

b) Food and Agriculture Benchmark, World Benchmarking Alliance

This benchmark is under development by the WBA and will measure companies on their progress to meet the SDGs.⁵¹ The new Food and Agriculture Benchmark will focus on social inclusion, environment and nutrition indicators. Tracking company performance prompts the need to assess their respective supply chains, including ingredient suppliers. (Note WBA’s indicator of “sustainable food production and sourcing.”)



Baseline assessment topics



⁵¹ Viktoria de Bourbon de Parme, Food Transformation Lead, World Benchmarking Alliance, presentation, project webinar, Sept. 16, 2020.

F | Project Stakeholder Engagement

a) Webinars, 2020

Webinar event	Speakers
<p>“Global context”</p> <p>April 16</p>	<ul style="list-style-type: none"> • Ido Verhagen, Lead, Food & Agriculture Benchmark, World Benchmarking Alliance • Robynne Anderson, President, Emerging Ag • David Bennell, Manager, Food & Nature / Member Relations, North America, World Business Council on Sustainable Development (WBCSD) • Tim Faveri, VP Sustainability & Shared Value, Maple Leaf Foods • Evan Fraser, Director, Arrell Food Institute, University of Guelph <p>https://arrellfoodinstitute.ca/index-agri-food-performance/</p>
<p>“Metrics & benchmarks”</p> <p>September 16</p>	<ul style="list-style-type: none"> • Viktoria de Bourbon de Parme, Food Transformation Lead, World Benchmarking Alliance • Christophe Béné, Senior Researcher, Alliance of Bioversity International & the International Center for Tropical Agriculture, Consultative Group on International Agricultural Research (CGIAR) • Bridget Schrempf, Manager, Sustainable Food Systems, CDP • Greg Peterson, Assistant Chief Statistician, Economic Statistics, Statistics Canada • Bronwynne Wilton, Project Lead, Canadian Agri-Food Sustainability Initiative (CASI) • Michael Crowe, Board Member, Canadian Agri-food Automation & Intelligence Network (CAIIN); VP, Academic & Research, Lakeland College, AB • Susie Miller, Executive Director, Canadian Roundtable for Sustainable Crops • Brenna Grant, Manager, Canfax Research Services, a division of the Canadian Cattlemen's Association • Deborah Wilson, Chief Industry Engagement Officer, TrustBix Inc. <p>https://www.gifs.ca/events/details/national_index_on_agrifood_performance_webinar</p>
<p>“Policy & strategic implications”</p> <p>November 18</p>	<ul style="list-style-type: none"> • John Uhren, Head, Sustainable Finance, Products & Strategy, BMO Financial Group • Luis Carazo Jimenez, Head of Unit, DG Agriculture & Rural Development, European Commission • Margarita Lysenkova, Manager, Standards, GRI (Global Reporting Initiative) • Lauren Baker, Director of Programs, Global Alliance for the Future of Food • Erin Fitzgerald, Chief Executive Officer, U.S. Farmers & Ranchers in Action • David Bennell, Manager, Food & Nature / Member Relations WBCSD North America, WBCSD • Michelle Nutting, Global Lead of Agriculture & Environmental Sustainability, Nutrien • Keith Currie, Vice-President, Canadian Federation of Agriculture & President, Ontario Federation of Agriculture • Steven R. Webb, Executive Director & Chief Executive Officer, Global Institute for Food Security <p>http://emilicanada.com/national-agri-food-index-initiative/</p>

b) Stakeholder engagement

(Ottawa, Saskatoon consultations and three webinars)

Bold font indicates project partner

360 Energy Inc.

Ag-West Bio

Agricultural Research & Extension Council of Alberta

Agricultural Research Institute of Ontario

Agriculture & Agri-Food Canada

Agriculture & Rural Development, European
Commission

Alberta Agriculture & Forestry

Alberta Innovates

Alliance Bioversity International, International Center for
Tropical Agriculture (part of Consultative Group on
International Agricultural Research, CGIAR)

Arrell Food Institute, University of Guelph

Barley Council of Canada

Bayer Crop Science

Beverly Greenhouses Ltd.

BioFoodTech

Blockadvice Corp.

BMO (Bank of Montreal)

British Columbia Agriculture Council

British Columbia Ministry of Agriculture

Canada West Foundation

Canadian Agri-Food Policy Institute

Canadian Agri-Food Sustainability Initiative

Canadian Agri-Food Trade Alliance

Canadian Agricultural Safety Association

Canadian Aquaculture Industry Alliance

Canadian Canola Council

Canadian Canola Growers Association

Canadian Cattlemen's Association

Canadian Centre for Food Integrity

Canadian Federation of Agriculture

Canadian Horticultural Council

Canadian Meat Council

Canadian Pork Council

Canadian Produce Marketing Association

Canadian Roundtable for Sustainable Crops

Canadian Wildlife Federation

Canola Growers of Canada

Capitals Coalition

Cargill

Carleton University

CDP

Cereals Canada

Chicken Farmers of Canada

Concordia University

Convergence.tech

CropLife Canada

Dairy Farmers of Canada

Danone Canada

Deans Council – Agriculture, Food & Veterinary
Medicine

Department of Fisheries, Forestry & Agriculture,
Newfoundland & Labrador

Economic Development Regina

Egg Farmers of Canada

Emerging Ag Inc.

Enterprise Machine Intelligence & Learning Initiative

Environment & Climate Change Canada

Environment, Water & Climate Change, Prince Edward
Island

EU Delegation in Canada

EU Delegation to the United States

Export Development Canada

Farm Credit Canada

FarmLead

Federated Co-operatives Limited

Fertilizer Canada

Fisheries & Oceans Canada

Fisheries Council of Canada

Food & Agriculture Organization (FAO)

Food & Beverage Canada

Food, Health & Consumer Products of Canada

Genome Alberta

Genome Prairie

Global Advantage Consulting Group

Global Affairs Canada

Global Alliance for the Future of Food

Global Institute for Food Security

Golden Horseshoe Food & Farming Alliance

Grain Farmers of Ontario

Grand Valley Group of Companies

Greenbelt Foundation/Greenbelt Fund

GRI (Global Reporting Initiative)

GS1 Canada

Ideovation

InfraReady Products

Innovation Saskatchewan

Inter-American Institute for Cooperation on Agriculture

International Institute for Sustainable Development

KeyLeaf

Kraft Heinz Canada

b) Stakeholder engagement (continued)

Ottawa, Saskatoon consultations and three webinars)

Bold font indicates project partner

Lactalis

Lakeland College

Loblaw Companies Ltd.

Manitoba Agriculture & Resource Development

Maple Leaf Foods

McDonald's Canada

McGill University (Desautels Faculty of Management;
Desautels Sustainability Network; Margaret A.
Gilliam Institute for Global Food Security)

Mission of Canada to the EU

National Bank of Canada

National Research Council Canada

North American Meat Institute

Nourish/McConnell Foundation

Nova Scotia Department of Agriculture

Nutrien

nutriSCOPE

Olds College

Ontario Agri-Food Technologies

Ontario Genomics

Ontario Greenhouse Vegetable Growers

Ontario Ministry of Agriculture, Food & Rural Affairs

Parmalat

Pear Bureau Northwest

Peregrine Impact Associates

Plant Protein Alliance of Alberta

Post Holdings

Prairie Agricultural Machinery Institute

Protein Industries Canada

Pulse Canada

Retail Council of Canada

Saskatchewan Food Industry Development Centre

Saskatchewan Ministry of Agriculture

Saskatchewan Pulse Growers

Saskatchewan Wheat Development Commission

Second Harvest

Soy Canada

Standards Council of Canada

Statistics Canada

Stratos

Sustainable Agriculture Initiative (SAI) Platform

Syngenta

Tactix

Taste of Nova Scotia

The Arrell Family Foundation

The Craft Beer Company Ltd.

TrustBix Inc.

U.S. Farmers & Ranchers in Action

Unilever Canada

United Nations Association of Canada

United Nations Global Compact

University of British Columbia (Forestry Resources
Management; Land & Food Systems)

University of Guelph (see also Arrell Food Institute;
Gordon S. Lang School of Business and Economics)

University of Ottawa (Health Sciences; Smart Prosperity
Institute)

University of Prince Edward Island

University of Saskatchewan (See also Global Institute
for Food Security; and Nutrition; Vaccine & Infectious
Disease Organization)

University of Toronto (NSERC Program in Food Safety,
Nutrition & Regulatory Affairs)

Urban Farms

Viridi Global

Western Canadian Wheat Growers Association

Western Economic Diversification Canada

Wilton Consulting Group

World Benchmarking Alliance

World Business Council on Sustainable Development

WWF-Canada

G | Acknowledgements

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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
National Research Council Canada
Nutrien
Protein Industries Canada
Pulse Canada
Standards Council of Canada
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Webinar partners

Arrell Food Institute (April 16/20), Global Institute for Food Security (Sept. 16/20), Enterprise Machine Intelligence & Learning Initiative (Nov. 18/20)

Research

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