



Looking Beyond the Election:

A Transition Binder for the next Minister of Agriculture and Agri-food

On September 20th, Canadians will have the opportunity to set the path for the next four years, usually, of government policy. This election, like most, has been light on agri-food policy content. Platforms have some agri-food commitments, but the next Agriculture Minister's desk will be covered with policy files as varied and complex as the agri-food system is itself, many of which received no mention during the campaign.

To bridge the gap between the platitudes of election campaigns and the realities of governing, departments prepare <u>Transition Binders</u> that dive into the issues the Minister must manage. The Canadian Agri-Food Policy Institute's (CAPI) team of Directors and Staff came together to offer additional insight for the next Agriculture Minister through a special edition of our newsletter we're referring to as our version of the Minister's Transition Binder.

CAPI sees the diverse policy files the Minister will face as connected by a critical need for a more resilient agri-food system that produces more and better, sustainably and profitability, to meet consumers' growing needs and wants in Canada and around the world.

At CAPI's recent <u>Big Solutions Forum</u> we outlined the <u>dynamic global</u> <u>context</u> in which Canada's agri-food system is trying to meet that critical need. CAPI also provided <u>four key actions</u> that are needed to meet that need: systems approaches, strategic thinking, public-private partnerships, and aspirational leadership.

This context and those actions are good starting points for the next Minister and can serve as an introduction for our Transition Binder. Click through the articles listed to the right and you can go deeper and explore some of the pressing issues facing Canadian agriculture today.

Start with a letter written to the next minister by Kim McConnell and then explore topics from cellular agriculture to the challenges facing young farmers and beyond, we hope that these personal perspectives will encourage additional thought on issues that will, or should, land on the desk of the next Agriculture Minister.

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Dear Minister:

Congratulations Minister. With your appointment to Cabinet, you assume a leadership position that is no longer considered a junior ministry; you lead a senior portfolio worthy of a front-row seat and as inter-disciplinarily connected as the Minister of Finance.

You are the Minister of Canada's food system - a system that is fundamental to every Canadian, and an ingredient supplier many citizens of the world are counting on to deliver safe, quality, and affordable food. Never has food been more important, and never have consumers been more interested in where it comes from or how it is produced and distributed.

Your portfolio and the industry you champion play an integral role in the success of many other ministries including Environment, Health, Economic Development, Trade, Global Affairs, and Treasury. You lead a 'super ministry' that Canadians are counting on to deliver jobs, investment, economic development, and play a leading role in climate change and carbon capture.

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You have been selected to lead this important ministry because you understand and are passionate about the agri-food industry and its contribution to Canada. You appreciate that agri-food systems are important to Canada and are the world's largest economic system, measured in terms of employment, livelihoods, and planetary impact.

You understand the importance of food security and food affordability. You recognize that while we are a nation that produces beyond our consumption requirements and is a major exporter of food ingredients, you also know that Canada imports significant food that could be produced and processed here at home creating jobs for Canadians and lessen our dependency on others.

Agri-Food: A 'Super Minister' Portfolio Kim McConnell, CAPI Board Member

You appreciate the abundant natural resources our nation has been blessed with and the important role that the agriculture industry plays in protecting these resources including water, land, air and wildlife.

You know this summer's drought across western North America, with its consequences for economic well-being, food security and environmental sustainability, helps emphasize and puts legs under the "Food Policy for Canada".



You respect the strategic role that Canada's food abundance and standards of excellence can play in our nation's position on the international stage.

You understand the importance in balancing our ECCC mandate to reduce carbon without reducing food production. You respect the responsibility our agri-food system can play in waste reduction. And you are passionate about the 'bread and butter' role that Canada's agri-food system can play in building a strong and vibrant rural and foodbased economy.

You have been selected for your leadership skills that can unite provinces, industry, academic and NGO partners in a wide array of disciplines including policies, entrepreneurship, and culture. And you have been selected because you're respected by the Prime Minister, your minister peers, and the department of professionals you lead.

Minister, we congratulate you on this 'super ministry' appointment. And we welcome the opportunity to work with you and your leadership team in the development and implementation of a strategic plan that advances Canada's food system and our country.

Sincerely, Kim McConnell, CM





Changing Times Require a New Approach to Securing the Future Prosperity of Canada's Agri-

food Sector

John Weekes, CAPI Board Member

As climate change exacts an increasing toll on food production around the globe, it is evident that it will be increasingly difficult to provide adequate sustainable food supplies for a growing world population. The next Canadian government should establish a strategic plan for putting Canadian agriculture in the lead in addressing this challenge. There is considerable scope for Canadian producers to increase production in an environmentally sustainable way. But doing so will require adjustments to the legal framework, including in the international trade rules. Agriculture is a key sector for growth in Canada's post COVID recovery. Indeed, CAPI research has revealed, that in Ontario the agri-food industry accounts for a larger share of the economy than the transportation equipment manufacturing industry.

Where can global food production be increased in an environmentally sustainable way? It becomes quickly obvious that there are very few countries that are net exporters of agricultural products. They are in the New World – Canada, Argentina, Uruguay, Chile and Brazil along with Australia and New Zealand. The EU and the U.S. are major exporters of particular commodities but they are also major food importers. Obviously, they cannot solve the global food shortage problem on their own. In addition, much of their surplus production is achieved by drawing down their natural capital, for instance, by emptying nonrenewable aquifers to irrigate crops in dry areas. Once this water is gone the agricultural production it has supported will disappear.

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Getting effective access to foreign markets for Canada's food and farm products has always been a priority for Canadian trade negotiators but making this a reality has proven difficult. Canada has an impressive array of free trade agreements, but exporters complain that in many markets various barriers continue to frustrate our exports. For instance, many Canadian suppliers of meat to the EU find their apparent improved tariff access is constrained by EU regulations that they suggest are unnecessarily burdensome. More damaging to Canadian producers are the large production distorting subsidies in the major markets for Canadian farm products in the politically dominant countries – the United States, the EU, China and India. Canada's future trade agenda should address these concerns that are shared by other net food exporters.

Changing Times Require a New Approach

John Weekes, CAPI Board Member

The agricultural producers in the most populous countries have a lot of political influence, but these countries are not dependent on agriculture for their economic livelihood. These countries also wield a lot of power in global affairs including in trade negotiations. At the G7 Summit table Canada is the only net food exporting country and this makes it hard to seek a new consensus on reforming the agricultural trade rules with our traditional partners.

Canada should reach out strategically to other food exporting countries to explore with them how to negotiate effectively to establish rules that will allow these countries to get fair and stable returns for their agricultural products. It is critical to ensure that the international trade rules promote the right price signals to encourage the production of food in an environmentally sustainable way. This is not an impossible dream, but it will require political leadership, a lot of hard technical work, and explaining to other countries why the approach is necessary to feeding the world in a sustainable way.

With the right political leadership Canada could take the lead in creating a new group dedicated to the twin objectives of removing remaining impediments to agricultural trade and ensuring that efforts to feed the world are done in an environmentally sustainable way.



The Cairns Group of agricultural exporting countries played a leading role in the reform of agricultural trade during the Uruguay Round of trade negotiations that led to the establishment of the World Trade Organization. Providing both political leadership and technical analysis, Australia was the moving force behind this group with strong support from Canada and others. With the right political leadership Canada could take the lead in creating a new group dedicated to the twin objectives of removing remaining impediments to agricultural trade and ensuring that efforts to feed the world are done in an environmentally sustainable way.

In the post COVID world it is becoming increasingly obvious that the biggest global challenges will require international cooperation. By taking the initiative now Canada can play a leading role in establishing the basis for success.



"The core problems facing the governance of animal health policy in Canada ... are the fragmentation of authority and responsibilities, the large number of actors inside government and out, and the lack of a streamlined and transparent mechanism for achieving overall coherence in a complex policy area. In short, the system needs to be rationalized."

INSTITUTE ON GOVERNANCE, 2013

Canada's animal agriculture industries are having a tough go. Whether it is drought-induced livestock feed shortages in the west, or China's arbitrary withdrawal of many pork and beef plant export approvals or watching meat and milk alternatives capture the hearts and stomachs of consumers, it is hard to feel optimistic.

On the other hand, global demand for animal protein continues to boom, few countries enjoy Canada's net export status in sustainably produced red meats and, love them or hate them, our supply management systems in dairy and poultry are the envy of farmers in many other countries. But for all that, there is a growing risk to our animal industries that could quickly make disruption from climate, markets and diets seem like modest problems. The threat comes from border-closing foreign animal diseases and Canada's sluggish and fragmented system to prevent, prepare, respond and recover from them. Challenges in managing COVID-19 have much to teach us.

In the course of my career, Canada has survived many crisis events and "near misses" in multiple species with enormous financial losses. The biggest infectious animal disease threat we currently face is African Swine Fever. After destroying half of China's pig herd in 2018–20, the disease continues its global spread, arriving in Dominican Republic two months ago. An outbreak in Canada would end \$5b in pork exports overnight. More quietly, as highlighted by <u>CAPI's research</u>, Chronic Wasting Disease in wild and farmed deer and elk presents real risks to trade in agricultural products, to food security in northern communities and shows potential for transmission to humans.

And over that career, efforts to improve organizational preparedness have multiplied. From the formation of the Canadian Animal Health Consultative Committee in the 1970s to the Plant and Animal Health Strategy endorsed by federal-provincial-territorial (FPT) Ministers in 2017, we have had no shortage of new strategies, coalitions, information networks, programs and tools. But year after year, as governments consult on more systemic change and industry lobbies for help in the wake of each disease event, the "reactive" playbooks (emphasis on the plural) stay largely the same.

Animal Health Canada: Opportunity Knocks Rory McAlpine, CAPI Board Member

We need to do better. For a largely export dependent supply chain that drives half of all Canadian farm income and provides 200 thousand Canadian jobs, we can't afford second best efforts. In particular, we urgently need to focus on "One Health" solutions given that most emerging infectious diseases are, like COVID-19, transmissible between animals and humans. We need to listen more carefully to the country's outstanding veterinarians and epidemiologists working across government, academia and the private sector.

That is why, in November 2018, fourteen leaders of Canada's national livestock, dairy and poultry associations, plus CEOs of leading meat and dairy processors, wrote a letter to FPT Ministers with this bold statement: "As industry leaders, we believe a better future lies in a new national governance model that ... would bring industry, federal and provincial governments into a decision-making and resource-sharing partnership, notionally to be described as 'Animal Health Canada' (AHC)."

Since then, under the umbrella of the Canadian National Farmed Animal Health and Welfare Council (NFAHWC), and with great support from Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency (CFIA) and many provincial agriculture departments, a working group, supported by a CEO Champions group, has been dedicated to building AHC. By the time a new Minister of Agriculture and Agri-Food takes office, the first stage of transitioning NFAHWC to AHC should be underway.

Animal Health Canada is a much needed, bold innovation and a legacymaking opportunity for any new government and Minister.

But the final goal is a true "Public Private Partnership" and that is where political leadership will be required, nationally and provincially. We have many examples of what a stronger partnership could look like – from Animal Health Australia to New Zealand's unique plant and animal protection organization called Biosecurity New Zealand. Here in Canada it took the tainted blood crisis and the Krever Inquiry to fix the governance of blood safety by forming the Canadian Blood Services Agency in 1998. It took SARS to create the Public Health Agency of Canada.

The point is to acknowledge our cross-jurisdictional shortcomings – in biosecurity standards, animal traceability, integrated surveillance, data sharing, vaccine research and supply, wildlife disease management, emergency response, outbreak zoning, mortality insurance and recovery programming and resist the temptation of more incremental, compartmentalized "improvement." Without in any way compromising CFIA's international role as Canada's "competent authority" for animal health, we must rationalize the organizational landscape and lean into a governance model that has sufficient autonomy to transform our way of working, with a laser focus on disease prevention.

As COVID-19 illustrates, managing disease response is very challenging in our large, diverse and complicated country. But the pathogens, viruses, prions and parasites circulating globally don't care much. Nor will our trade partners if a single Canadian pig, farmed or wild, tests positive for African Swine Fever. Animal Health Canada is a much needed, bold innovation and a legacy-making opportunity for any new government and Minister.



One to Watch: Cellular Ag

Deb Stark, CAPI Board Member

Agriculture has always been open to disruption but the level of change at this time is unprecedented. From robotics, to spectrum-specific LED bulbs, to artificial intelligence, it's almost impossible to predict what's next.

One area on CAPI's watch-list is that of cellular agriculture. Cellular ag is a rapidly emerging space and there is no universally agreed upon definition or terminology. For the purposes of this piece, the author is including both the process of culturing animal cells in a lab to create meat or seafood, and altering simple organisms such as yeast and algae to create products such as milk or egg proteins (sometimes called precision fermentation).

The global opportunity is enormous. Global demand for protein is on the rise and advocates argue the potential exists for alternate proteins to secure 10 – 20% of meat and dairy markets in the next twenty years. They also argue the technology is transformative and will have positive environmental, social and animal welfare impacts.

Agriculture Ministers should be nurturing these new technologies, while also working with the current agri-food system

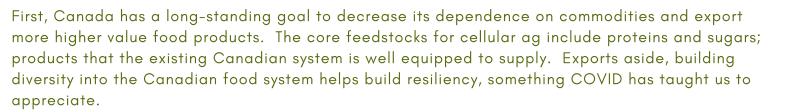
The transformation is underway. Perfect Day is selling yeast-derived dairy products across the United States. Sophie's Bionutrients unveiled the world's first burger made from micro-algae last year. Canadian companies include Appleton Meats (B.C.), Because Animals (ON) and Future Fields (ALTA). Venture capital, pension funds and traditional food companies are investing in these start-ups.

It might be tempting for a new Ag Minister to leave this file in the hands of the economic development department. After all, cellular ag happens in stainless steel vats, not on the land or in the barn. These businesses are run by protein engineers and fermentation experts not farmers or meat packers. The sector needs are similar to any other – capital, talent, scale-up infrastructure.

That would be a mistake. Agriculture Ministers should be nurturing these new technologies, while also working with the current agri-food system, for several reasons. Here are three.

One to Watch: Cellular Ag

Deb Stark, CAPI Board Member



Ag departments are well positioned to help derisk this technology and integrate it into Canada's food system. Cellular ag is "one to watch" for any new Minister of Agriculture

Second, cellular agriculture will disrupt existing animal industries. The disruption will be global but there will be impacts that are unique to Canada. Some of the earliest products to hit the market will likely be dairy and eggs, both supply managed sectors who cannot easily replace lost market share. How do we minimize the impacts on communities? On other businesses that depended on by-products from the traditional production methods? These questions will land on the desk of the Minister of Agriculture.

Finally, and maybe most importantly, this new technology needs to be introduced thoughtfully if we want to gain the full benefit. There are questions about consumer acceptance. About its role in reducing food insecurity. We need to understand the full range of environmental impacts. Regulatory pathways must be developed.

We must learn from lessons of the past. Food is complex and ever evolving. There's much more to consider than merely economics, taste and nutrition. Failure to consider social, cultural, political, and environmental factors can lead to significant setbacks.

Ag departments are well positioned to help derisk this technology and integrate it into Canada's food system. Cellular ag is "one to watch" for any new Minister of Agriculture.





Food is part of a society's identity. When thinking of food, we think of agriculture. When thinking of agriculture, we think of farmers. Those who work with land and animals are essential to our society. They are the ones who are the foundation of agri-food and help feed society while producing high quality foods. In 2021, there are many challenges, and even more for those who want to make a living in agriculture. Whether we think of climate change and the environment, market fluctuations, access to capital, technology and labour, young farmers will have many challenges to deal with in the years to come. Therefore, the government will have a role to play in creating the right conditions to help them overcome these obstacles.

Whether we think of climate change and the environment, market fluctuations, access to assets, technology and labour, young farmers will have many challenges to deal with in the years to come.

First, summer 2021 across Canada is a good indication of what can be expected from climate change in the years ahead. The extreme temperatures and droughts this year across Canada have shown us the degree to which agriculture is directly affected by the weather. Farmers will need different options for ensuring they can feed and provide water for their herds. Research and development to address these challenges continues to be needed. Water management, new varieties of cultivars, new technologies and practices will have to be developed. A farmer on his/her own won't be able to do that. Instead, it's by working together with the government that we will be able to find concrete solutions that meet our current and future needs. This is also true for the environment. Agriculture is one of the solutions to reducing greenhouse gases. Together, we can find ways to work in the same direction.

At the same time, debt levels for farming businesses have been increasing in the last few years. For young farmers, in particular, risk tolerance is lower because debt is often higher, since the business is either just starting up or has been recently transferred from family members. That's why there must be government programs for dealing with the risks. Whether it's trade agreements that impact their income, disease in their herd, weather conditions, the stock markets, etc., risks to farm income are great, and for some risks, we have little control over them. We therefore need to make sure that we're not totally vulnerable. Also, the government must be sure to stand up for its agriculture when negotiating trade agreements.

The Challenges Facing Canada's Young Farmers Julie Bissonnette, CAPI Board Member

Access to capital and new technology is expensive, but necessary for businesses. When considering investing in farmland, machinery, inputs, everything is expensive. By having more debt, young farmers often have more liquidity problems. Anything that can give them a break will be helpful such as: preferential programs or discounts on interest rates and payments.



The Canadian population needs its farmers to provide safe, nutritious and highquality food, just as farmers need an enabling government, regulatory and business environment. In Canada. we're fortunate that many young people are interested in farming. However, those young people must be properly equipped to make their life's work a success.

In addition, labour shortages are being felt in agriculture as well. Farm businesses need workers with specific skills because tasks are more seasonal and manual. Temporary foreign workers often fill this need. For the next few years, they must be easily accessible, in compliance with legal requirements of course, and when needed.

In conclusion, the Canadian population needs its farmers to provide safe, nutritious and highquality food, just as farmers need an enabling government, regulatory and business environment. In Canada, we're fortunate that many young people are interested in farming. However, those young people must be properly equipped to make their life's work a success. They are passionate about their work. They farm their land and tend their animals with great care and love. It's a way of life that allows us to thrive and live out our passion every day. As explained, a number of risks beyond our control can have a direct negative impact on the business. The more the government is there for us, the easier and more pleasant it will be.



Understanding the Shifting Context for Canadian Agri-food Policy Al Mussell, CAPI Research Coordinator

The strategic situation facing the agri-food sector in Canada is shifting on multiple fronts. These contextual changes matter in terms of what can be achieved through specific agri-food policies. For example, in an environment of relatively less uncertainty/volatility in weather, farm prices, market access, and domestic support elsewhere, a specific business risk management and supporting programming set can secure farm earnings within a given bandwidth relative to a historical reference. Conversely, if one or more of the elements that form this context changes materially or becomes more uncertain, the ability of this programming set to secure the same bandwidth is undermined.

Advances and increased adoption of new ag technologies can blunt the effects of some of these shifts, but if changes in market conditions and domestic/foreign policy are sufficiently sharp, or technology adoption is uneven, it will force the reassessment of important elements of Canadian agricultural policy.

From the perspective of today, the changing set of conditions do not appear marginal. The stifling drought in Western Canada seems to be a symptom of increasingly variable weather globally, with simultaneous regional droughts and excessive moisture- in some cases devastating flooding- in adjacent regions throughout the world. Animal diseases such as African Swine Fever, or those that threaten to be potentially transmissible to humans are having more of an impact on the food security of nations with the potential market volatility we have seen of late. Partly as a result of both of these pressures, agricultural markets have become increasingly volatile, however the situation has penetrated to a deeper level. As some countries have become rattled by food security worries they have embarked on forward purchasing, export bans, and food hoarding practices observed during the pandemic but apparently extending beyond it. Other countries have evolved to use food policy as a form of weapon, with erratic opening and closing of market access using technical and other barriers to trade, apparently in an attempt to secure better terms of trade for themselves. Elsewhere, farm program payments are up sharply, the legacy of the pandemic, trade wars, and other factors which now form precedents that are difficult to overturn. Multi-lateral institutions, notably the World Trade Organization, have struggled to discipline this behaviour.



Understanding the Shifting Context Al Mussell, CAPI Research Coordinator

The understanding is growing that the changing and more difficult climatic and environmental conditions being experienced have been influenced by past human activity, including agricultural practices. Equally, agricultural practices can play a restorative and evolutionary role in climate and environment, but this is extremely complex- littered with relationships that are only partially understood, and unknown thresholds. At the same time, the expectations and scrutiny of the agricultural system by some members of the public, pushing through to some governments, has never been higher.

Perhaps the best understanding is that our situation today seems much more integrated, with agricultural sustainability, climate/environment, animal disease and human action manifest in more hawkish trade and domestic policy on food all intrinsically linked. If this is correct, it is a precarious situation.

As Canadian agri-food, we have much to offer vast regions of Canada and the broader world. Our situation requires ongoing observation and analysis, with assessments made as to whether the changes in situation are actually marginal and manageable within the range of tweaks to existing policy parameters, or whether they are deeper, systemic, and require more fundamental change. We have experienced droughts before; we have experienced trade disputes before; we have navigated protectionist agri-food trade- however, in the last 25 years these stresses have been mostly short lived and distributed over time. It is a very different situation if they are likely to increase in frequency over time and/or come all at once. We need to allow these observations and analyses, along with our objectives for the sector, to guide our agri-food policy direction.



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One of the key findings from CAPI's <u>Big Solutions Forum</u>, held last May 2021, based on research, outreach, and dialogues with government and industry thought leaders over the past year, was just how important boosting productivity growth will be for the future sustainability and resilience of the Canadian agriculture and food system. While increasing both public and private investments in R&D and innovation will be important, we must also accelerate the pace of adoption of new technologies and practices that are in the pipeline. New collaborative, multidisciplinary approaches and public- private partnerships are key to ensuring these new innovations are developed, disseminated and adopted by farmers and industry players and accepted by the public more quickly.

This was the message from both Tim Searchinger of the World Resources Institute and Christopher Barrett of Cornell University during two CAPI webinars feeding into the Big Solutions Forum. Tim Searchinger emphasized the importance of productivity growth for boosting agricultural yields and reducing agriculture's Greenhouse Gas (GHG) emissions by 2050. [1] His menu of actions included reducing food waste, shifting diets away from meat, achieving replacement-level fertility rates (in Sub-Saharan Africa) and protecting and preserving natural ecosystems (i.e. peatlands, grasslands and forests). But at the forefront of all these actions is the need to increase food production without expanding agricultural land, "doing more and better with less". This requires higher productivity growth rates but also faster adoption of new technologies. So real money needs to go into collaborative projects where teams of scientists and farmers can work together with industry and society for

faster adoption and outcomes.

Christopher Barrett of Cornell University also argued that to accelerate the transition towards a more sustainable food system, "we must continue raising productivity while shifting course to accommodate other crucial objectives like poverty reduction, healthy diets, climate change mitigation... and resilience." This will require new pathways that go beyond simply developing the technologies... but "build socio-technical innovation bundles of mutually reinforcing technologies, policies, knowledge, social institutions and cultural norms, with broad stakeholder participation to co-create the right bundle for a specific time and place." [2]

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Boost Productivity-Enhancing Agriculture Support

Margaret Zafiriou, CAPI Research Associate

Both Searchinger and Barrett (2021) argue for re-orienting current levels of agricultural support towards more productivity-enhancing spending. According to the Organization for Economic Cooperation and Development (OECD), agriculture support reached \$US 720 billion globally per year in 2018–20 in 54 OECD and emerging economies. However, much of this current spending distorts trade, damages the environment, reinforces income inequality and impedes necessary innovations. Instead, resources should be redirected towards research, skills training, education and extension, physical and institutional infrastructure, inspection and biosecurity and effective regulatory oversight, since it will be more effective at improving the food system's ability to address the triple challenges of improving food security and nutrition, boosting farm livelihoods, and reducing environmental impacts. [3]

Canada spent \$8.5 billion in total agricultural support (TSE) in 2020, up from \$7.8 billion in 2019. Three quarters (\$6.5 billion) was spent on support to producers, accounting for 10% of gross farm receipts, as measured by Producer Subsidy Equivalents (PSE) in 2020. This is down significantly from 1986, when direct support represented 23% of gross farm receipts. On the other hand, the EU allocated 19%, the OECD, 18% and the U.S., 11% to support its producers. Canada's productivity-enhancing support, on the other hand, as measured by General Services Support Estimates (GSSE), accounted for only 3% of agriculture's value of production in 2020, compared to Australia's 3.6%, the U.S.'s 3.7%, and the OECD's 3.8%. It is clear Canada could do more to boost this category of support to agriculture for spurring productivity growth and ensuring a more sustainable and resilience agri-food system in the future.

Hence the Minister of Agriculture and Agri-food should review Canada's overall agricultural support levels with a view to:

- Prioritize productivity-enhancing spending on agriculture, specifically R&D, skills training, extension, biosecurity and infrastructure;
- Ensure direct support in place is designed to provide protection for producers against natural disasters and unexpected risks;
- Find new ways of encouraging collaboration between farmers, the public, and private sector stakeholders to accelerate the development and adoption of new technologies and practices throughout the food system; and
- Invest in data and information on agricultural spending and make it available to industry, government and international decision-makers to help inform effective policy development and outcomes.



^[1] Searchinger presentation is available here: https://bit.ly/3tLeZRL.

^[2] Barrett, C.B. et al. 2021. "Bundling Innovations to Transform Agri-food Systems", Nature Sustainability. Vol. 3. December 2020.

^[3] OECD Agriculture Policy Monitoring and Evaluation report, 2021.