A More Robust, and Still Possible, Vision for Agri-Food and Climate Change Policy

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AGRI-FOOD ECONOMIC SYSTEMS

The Issue

In early 2021 Canadian agri-food finds itself in a position of renewed uncertainty. The issue holding the spotlight at the moment is the federal carbon pricing, and the forthcoming cost burden and competitiveness implications for the Canadian agri-food sector. Carbon pricing is generally viewed as one of the most efficient means to motivate emission reductions, and it is viewed as a necessary response- especially in central Canada and particularly among the urban population. Carbon pricing enjoys less support in western Canada and among the agricultural community.

How agriculture responds to the (urgent) need to address its role in climate change compounds existing worries for Canadian agri-food. With regard to trade, the Biden administration is not yet prepared to reverse the US position of blocking appointments to the WTO Dispute Settlement Appellate Body, prolonging the paralysis in WTO appeals that has existed since December, 2019.[1] The EU and China recently completed an agreement on investment and industrial support[2]; however, it appears that only parts of this agreement are on a Most-Favored-Nation (MFN) basis, a principle established as a fundamental concept in the GATT and WTO. Hence, other nations are excluded- further weakening the concept of equity of treatment previously undermined in US-Japan and US-China bilateral trade arrangements.

2021 ushered in the latest tranche of US *ad hoc* agricultural program funding, adding approximately US$12 billion in support to a broad swath of farm commodities, including livestock produced under contract.[3] The US is also pursuing a bold "Buy America" policy to support its manufacturing sector, with as yet unknown intents or impacts on food production and manufacturing.

In Canada, changes have been proposed to Business Risk Management programming that address the compensation rate for losses and the reference margin limitation under AgriStability. Yet, not all are pleased with this direction- some industry groups remain concerned about the sensitivity of the loss trigger, and some provinces are concerned with the additional exposure of their budgets to the changes.[4] Furthermore, some provinces have already begun to stray from maintaining a Canada-wide funding and

[1] "U.S. Delays Effort to Restore WTO's Key Decision-Making Power", Bryce Baschuk, Bloomberg January 25, 2021 https://www.bloomberg.com/news/articles/2021-01-25/u-s-delays-effort-to-restore-wto-s-key-decision-making-power?sref=ZcpONEpZ

[2] EU – China Comprehensive Agreement on Investment, for preliminary text see https://trade.ec.europa.eu/doclib/press/index.cfm?id=2237

[3] See Keith Good "Congress Passes COVID Relief Stimulus Package, with Agricultural and Nutrition Provisions" Illinois Farm Policy News, December 22, 2020 https://farmpolicynews.illinois.edu/2020/12/congress-passes-covid-relief-stimulus-package-with-agricultural-and-nutrition-provisions/

[4] A joint statement January 19,2020 by co-chairs of the Federal-Provincial-Territorial agriculture ministerial meetings encouraged provinces to come on board with proposed AgriStability changes, but also acknowledged that they "may not be the perfect solution for all farmers or governments". https://www.canada.ca/en/agriculture-agri-food/news/2021/01/joint-statement-from-the-2021-federal-provincial-territorial-agriculture-ministerial-co-chairs-on-proposed-changes-to-the-agristability-program.html

program design approach to farm support programs. These events add to the centrifugal forces across regions and commodities affecting policy continuity and coherence for the industry.

Into this situation, supplementary mandate letters were issued to federal ministers in mid-January. The Minister of Agriculture and Agri-Food's mandate letter made reference to climate change and the need to cut emissions and create greater resilience in managing climate change, work with First Nations, use of gender-based analysis in decision making, and maintaining a professional relationship with the media. The letter goes on to enlist the Minister and Agriculture and Agri-Food Canada in support of a host of initiatives led by other ministries.[5]

Canada's agri-food policy direction is lacking the bold ambition appropriate for this moment and misses a critical opportunity for agri-food policy to assimilate climate change with other strands of important public policy issues into a cohesive strategy, one that is of great importance to Canada.

This policy note develops the critical connections into a more ambitious and realistic policy agenda.

Regional Economic Development Opportunities and Provincialism

The Covid-19 pandemic has hobbled the Canadian economy, but the effects have not been uniform, exacerbating regional distortions that were already in place prior to the pandemic. A very tangible aspect of this is unemployment. Monthly unemployment rates for Canada, the western provinces, and central Canada are presented in Figure 1 below. The effect of the pandemic on unemployment beginning in March 2020 is stark; however, it is also evident that well before the pandemic, unemployment in Alberta was distinctly above the national average. From January 2016 to February 2020, the spread between Alberta and Canadian unemployment rates was just about 1.2 percentage points. Since the pandemic, as all provinces have experienced greater unemployment rates, the spread between Alberta and Canadian unemployment rates has increased to just over 2 percentage points (March-December 2020 average).

This creates intense pressure to facilitate regional economic development and create employment opportunities. In Alberta it means looking for alternatives to oil and gas. Portions of the eastern slopes in Alberta have been considered for opening to strip coal mining development, and since shelved. Other areas consistent with natural resource endowments are likely also under renewed consideration for economic development; surely agriculture and food are high up on that list.

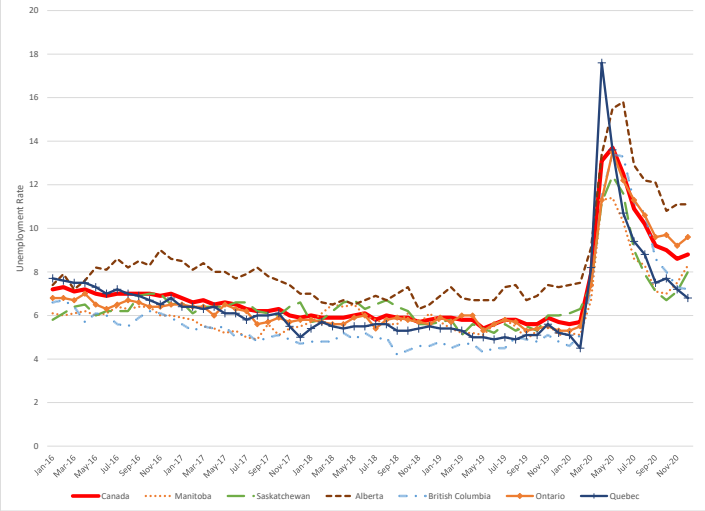
There is a certain danger in economic pain felt especially hard in a region among a broader trend of economic malaise. The worry is that desperation will fuel unilateralism and provincial rivalry in agriculture- a unique (along with immigration) portfolio of federal-provincial joint jurisdiction. The recent moves in Alberta to significantly cut crop insurance premium rates for producers[6], and to pursue a provincial margin-based program alternative to AgriStability[7] are consistent with this. These developments could trigger other provinces to respond in kind or provide the precedent to pursue more provincially-based initiatives. Taken to its logical extent, it threatens to fragment or undermine elements of a coherent national agenda in agri-food policy.

[5] See the mandate letter https://pm.gc.ca/en/mandate-letters/2021/01/15/minister-agriculture-and-agri-food-supplementary-mandate-letter

[6] https://www.alberta.ca/article-20-per-cent-off-crop-insurance-for-alberta-farmers.aspx

[7] https://www.realagriculture.com/2021/01/agristability-should-be-more-timely-equitable-and-predictable-minister-dreeshen/

Figure 1 Estimated Unemployment Rates, Canada and Selected Provinces



Source: Statistics Canada. Table 14-10-0287-01 Labour force characteristics, monthly, seasonally adjusted.

Agriculture: Not Just an Emitter- A Climate Change Solutions Provider

The understanding of agriculture's role in greenhouse gas emissions in Canada has proven to be limited to technical quarters in industry, government, and academia- and this is borne out in federal climate change policy in which agriculture is treated primarily as a user of fossil fuels and a GHG emitter. The primary federal government guidance document for climate change policy, *A Healthy Environment and Healthy Economy* (2020) makes only passing reference to agriculture as other than a source of greenhouse gas emissions[8].

For most segments of society and the economy, what is possible is emissions reductions and adaptation- we can drive less, switch to more emissions-efficient technologies, or turn down the thermostat. Agriculture is different because it naturally *fixes* CO_2 as part of photosynthesis. What occurs from the point in which CO_2 is fixed in plant tissue and soils can be heavily influenced by farming practices and the management of our agricultural system. According to the 2016 census, Canada has a total area of farms of about 159 million acres- comprised of cropland, pasture and unimproved land areas - in which this process in ongoing. The scale of this potential carbon sink provides a distinct opportunity for Canada.[9]

Moreover, the agricultural technology employed in farming systems has improved the efficacy and efficiency of emissions management, despite the fact that emissions reduction has not been its primary motivation (thus far). The dramatic advances in direct seeding technology and its widespread adoption, especially in western Canada, control emissions based on chemical fertilizers and from releases of CO_2 and other greenhouse gases associated with tillage and additional trips across the field avoided. Nitrogen fertilizer treatments, such as urease inhibitors, protect against atmospheric losses of nutrients as gases associated with climate changes.

The contribution of livestock to greenhouse gases, particularly ruminants, is badly misconstrued. This maps back to *Livestock's Long Shadow*, a study by the UN-FAO in 2006, concluding that livestock were

[8] Page 37 makes reference to a Federal Greenhouse Gas Offset System which will provide flexibility to compliance with federal carbon pricing. The Climate-Smart Agriculture Annex to the report says that "The federal GHG Offset System, which the Government of Canada is developing as part of its approach to pricing carbon pollution, will generate additional economic opportunities in sectors such as agriculture and forestry.", but does not articulate the rationale for offsets, nor any detail.

https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy.html

[9] See for example: Efficient Agriculture as a Solutions Provider, Canadian Agrifood Policy Institute https://capi-icpa.ca/explore/resources/efficient-agriculture-as-a-greenhouse-gas-solutions-provider/?_keyword=&_after=&_before=&_orderby=post_date&_order=desc&_paged=2

responsible for 18 per cent of global GHG emissions.[10] The study was later found to have badly exaggerated livestock emissions.[11] New research has since revealed that emissions of methane by ruminants are exaggerated to even a much greater degree than previously believed. Essentially

- Plants consumed by ruminants fix atmospheric CO_2 as part of photosynthesis
- Enteric fermentation by ruminants produces methane, a potent greenhouse gas
- Methane is not a permanent greenhouse gas; it transforms over 10-15 years in to non-GHGs.
- Methane produced by ruminants does not accumulate long term in the atmosphere like CO_2.[12] It is also not a "new" source of carbon in the atmosphere; it is recycled CO_2 previously fixed by plants; this differs from methane emitted in the extraction and burning of fossil fuels released from being sequestered long, long ago.

One implication is that, while methane is a potent greenhouse gas the effect is temporary, and a stable cattle herd over time has negligible net effect on global warming; in turn, by supporting land use for forages and pasture it helps to increase and retain CO_2 sequestered in the soil.

Global Markets Need Sustainable Suppliers

Reliable access to food, and a reliable agricultural production system from which to produce food with minimal effects on climate change and other externalities, are increasingly a global focus. This is different from sustainability activism, in which specific production attributes are targeted in food marketing based on the perceptions and ethos of a niche subset of consumers. In today's focus, concerns about scarcity in food availability, scarcity in resource capacity and climate change threats to supply food- now and in the future- are at the forefront, and national governments rather than consumers are frequently the lead actors.

Figure 2 below illustrates this context, based on global cereals. Cereal production has increased over time, along with utilization. However, this has occurred in a manner that leaves little residual supply to build stocks. It is as though production and utilization have come increasingly into synch, with little redundancy in leftover production, and in effect each year's utilization has become more dependent upon that year's production. While production has trended up, stock levels are trending down. Securing the annual harvests going forward becomes that much more important- underlining the importance and risk of production disruption related to climate change.

In response, some countries have simply turned to extensive stockholding as a hedge on food availability for their population- such as Jordan, Egypt, and Pakistan with wheat. China is currently on a grain importing binge, particularly with corn and soybeans. Others relate more clearly to standards that preserve the natural resource base- both in terms of agricultural capacity and climate change mitigation capacity. In 2019, G7 leaders took issue with fires set in the Brazilian Amazon for the purposes of land clearing.[13] Prior to and since then, mechanisms have

[10] Steinfeld, H, Gerber P, Wassenaar T, Castel V, Rosales M, de Haan C. 2006. Livestock's Long Shadow. The Livestock, Environment and Development Initiative (LEAD). Rome: FAO

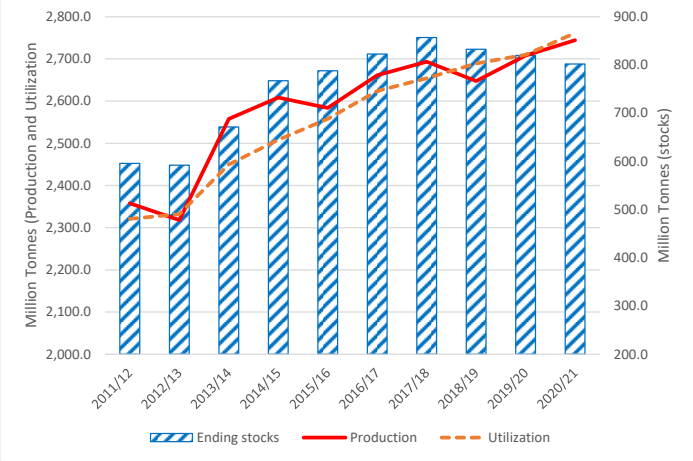
[11] See "Tackling Climate Change Through Livestock" by some of the same FAO authors Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities. Food and Agriculture Organization of the United Nations (FAO), Rome.

[12] See Mitloehner *et al*, 2020 https://clear.ucdavis.edu/sites/g/files/dgvnsk7876/files/inline-files/CLEAR-Center-Methane-Cows-Climate-Change-Sep-2-20_7.pdf

[13] See "Here's Where the Amazon Is Burning and Why It's Going to Get Worse" Bloomberg August 23, 2019

been devised to identify cattle and soybeans according to origin within Brazil, with the intent to restrict marketing of product produced on land converted from rainforest or cerrado.[14]

Figure 2 Global Cereal Production, Utilization, and Stocks



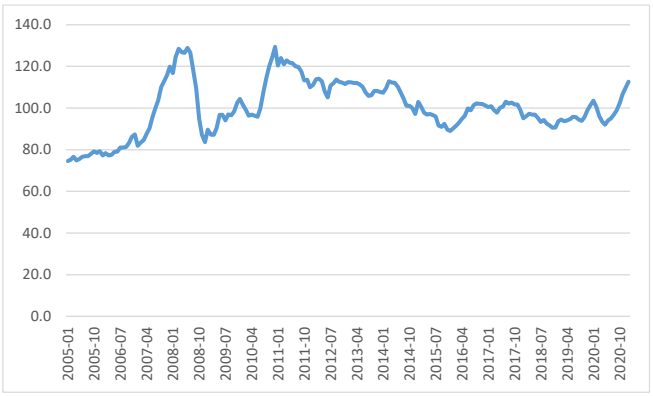
Source: UN Food and Agriculture Organization. Cereals include wheat and rice (milled basis)

Consistent with concerns of current or future scarcity, global food prices are on the increase. Figure 3 provides an illustration, based on the UN Food and Agriculture Organization monthly food price index. On an inflation-adjusted basis, global food prices in January 2021were at their highest since 2014 and have been trending upward since summer 2020.

Canada Has Capacity as an Export Supplier

In a broad range of staple agri-food products, Canada has material capacity as an export supplier. Based on data from 2017, measured in volume terms, Canada had net agri-food exports as a share of total production of 48 percent; only a handful of countries manage more than 30 percent net exports.[15] Many of the largest agri-food exporters, such as the US (at 22 percent), have relatively much less surplus available to export compared with the domestic population they have to feed. This makes them prone to placing export controls in volatile times and fears of domestic scarcity; Canada is not nearly as subject to this. Yeung and Kerr (2021) note that resilient export capacity may be especially valuable coming out of the pandemic, as more countries place export restrictions on staple agri-food products.[16]

Figure 3 UN FAO Monthly Real Food Price Index



Source: UN-FAO. 2014-16 = 100

The Setting for Canadian Agri-Food

The situation facing Canada and Canadian agri-food is many-layered, but it can be summarized as follows. Canada needs a source of economic development that

https://www.bloomberg.com/graphics/2019-why-amazon-rainforest-is-on-fire/

[14] See "Soybean Trader Vows Crop Tracing to Prevent Deforestation Harm" Bloomberg July 3, 2020 https://www.bloombergquint.com/global-economics/crop-giant-cofco-vows-to-trace-all-its-brazil-soy-buys-by-2023

[15] See "The New Trade Economy of Food Security: Repositioning Canada", Agri-Food Economic Systems Independent Agri-Food Policy Note, April, 2020 http://www.agrifoodecon.ca/uploads/userfiles/files/the%20new%20trade%20economy%20april%2013-20.pdf

[16] See May T Yeung and William A Kerr, *Canadian Agri-food Export Opportunities in a Covid-19 World.* University of Calgary Simpson Centre SPP Briefing Paper 14:5 February 2021 https://www.policyschool.ca/wp-content/uploads/2021/02/Agri-Food-Export-Yeung-Kerr.pdf

can address regional disparities, and also raise all boats. Agriculture is uniquely positioned to address climate change with a means of sequestering carbon, and Canada has an extensive base of land in farms from which this can be engaged- predominantly in the west. Platforms from which to supply foods that are sustainable- can continue to supply on an ongoing basis, and do not generate externalities that weaken productive capacity over time- are increasingly valued to address growing worries for food security. Frayed multilateral trade institutions and great power geo-politics make export market access increasingly fraught for a small country exporting commodity agri-food products.

As it stands, agriculture in Canada will be subject to carbon fees as an emitter. But allowing this to proceed with agriculture treated solely as an emitter- using a financial metaphor- is akin to focusing on just half of the balance sheet, and counting the emissions but ignoring the natural carbon sequestration and the earlier errors in the ruminant-methane calculations. Moreover, carbon fixation from agriculture extends well beyond agriculture, providing extensive capacity for carbon offsets and credits in the broader economy. How the additional costs borne by Canadian agriculture will be protected from being undermined by competition from cheaper imports from regions lacking the same ambition in carbon pricing and border fees has not been outlined.

The broad vision for this has not been developed. It exists in some segments- dedicated producers who choose to farm in a particular way that builds carbon in soils and reduces emissions; some polluting industries with the foresight some time ago to tap into agriculture as a source of offsets to their emissions. But the potential for the whole package is far greater and has not been advanced or communicated.

Canada could find itself suddenly left behind. Other countries are rapidly grasping agriculture as a solutions provider in mitigating climate change, and ambitious policy initiatives may soon follow. President Biden's recent Executive Order on Tackling Climate Change notes, "America's farmers, ranchers, and forest landowners have an important role to play…by sequestering carbon in soils, grasses, trees, and other vegetation, and sourcing sustainable bioproducts and fuels".[17] At Tom Vilsack's recent confirmation hearing as US Secretary of Agriculture, Jerry Hagstrom on DTN noted, "At his confirmation hearing, Vilsack said he hoped that Congress would give him the freedom to use the CCC [USDA-Commodity Credit Corporation] funding flexibility on climate change the way that it had allowed Agriculture Secretary Sonny Perdue to use the CCC to aid farmers who had lost export markets due to the trade policies of former President Donald Trump".[18] US President Biden campaigned on the concept of a border carbon adjustment fee, and the EU has proposed implementing a border carbon fee as soon as 2023.[19]

Moreover, US agriculture finds itself in a very different financial situation to support climate change initiatives than Canadian agriculture does. In a recent paper, Belasco *et al* observe that US net farm income is forecast to be up 48 percent in 2020 versus 2019 on the support of record US farm subsidies in 2020. [20] Canadian farmers were not the beneficiaries of this

[17] See Executive Order on Tackling the Climate Crisis at Home and Abroad, Section 214 https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

[18] See Jerry Hagstrom on DTN, February 6, 2021 https://www.dtnpf.com/agriculture/web/ag/blogs/ag-policy-blog/blog-post/2021/02/06/usda-official-carbon-commodity-ccc

[19] See John Ivison, National Post https://nationalpost.com/opinion/john-ivison-carbon-border-tax-under-biden-likely-not-imminent-but-it-may-be-inevitable

[20] See *Whither agricultural policy 2021 and beyond* by Eric Belasco, Joe Glauber, and Vincent Smith February 2, 2021. https://www.aei.org/research-products/report/whither-agricultural-policy-in-2021-and-beyond/

kind of support and even with the fall rally in crop prices, Canadian net farm income will not follow the US trend. The precedent of large *ad hoc* farm subsidies over multiple years in the US, and the political difficulty of removing them, creates the prospect of redeploying them to support climate change initiatives.

Conclusion

Canada faces a sobering set of challenges- pandemic recovery and economic growth; regional disparity and western alienation; meeting commitments to the Paris Accord on Climate Change on an economically sound basis; a more volatile agricultural marketing and farm income situation; a geo-political environment favoring great powers creating dangers for small and middle-sized countries; a world in which food security and the concerns of future capacity are rising, and readily scalable and sustainable options to increase food production are limited.

Bold, new and innovative policy for agriculture and food can be enlisted to advance all of these issues critical to Canada, but this is unlikely if agri-food remains isolated as a remote priority of the overall policy agenda- and not intrinsically linked to the key strategic elements of the policy agenda. Moreover, it presents the prospect of sharp conflict with (and possibly within) the agri-food sector over the cost burden of carbon prices, in which agriculture as a carbon sink is not properly reflected. This moment demands a more meaningful, mainstream, and holistic Canadian agri-food policy.