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**ALBERTA  
AGRI-FOOD  
FUTURES**

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# ALBERTA FUTURES PROJECT PRE-PUBLICATION SERIES

Alberta has a long history of facing serious challenges to its economy, including shocks in the form of resource price instability, market access constraints, and federal energy policies. However, the recent and current challenges seem more threatening. It seems that this time is truly different.

The collapse of oil and gas prices in 2014 combined with the rapid growth of U.S. oil production, difficulties in obtaining approval for infrastructure to reach new markets and uncertainty regarding the impacts of climate change policies world-wide have proven to be strong headwinds for the province's key energy sector. Together, the negative effects on employment, incomes and provincial government revenues have been substantial. To make matters worse, in early 2020 the COVID-19 pandemic struck a major blow to the lives and health of segments of the population and to livelihoods in many sectors. The result has been further employment and income losses, more reductions in government revenues and huge increases in government expenditures and debt. These events, combined with lagging productivity, rapid technological shifts, significant climate policy impacts and demographic trends, call for great wisdom, innovation, collective action and leadership to put the province on the path of sustainable prosperity.

It is in this context that we commissioned a series of papers from a wide range of authors to discuss Alberta's economic future, its fiscal future and the future of health care. The plan is that these papers will ultimately be chapters in three e-books published by the School of Public Policy. However, in the interest of timeliness and encouraging discussion, we are releasing selected chapters as pre-publications.

*Alberta's agri-food industry is a gentle giant that's about to awaken. It's an industry with scale, built on a foundation of excellence, and bubbling with a bundle of potential.*

*It's an industry recognized and respected internationally, yet sometimes misunderstood and frequently forgotten by the home audience.*

*It's an industry older than the province yet aligned to the future.*

*It's an industry galvanized with a purpose: to feed a growing global population while protecting the environment here at home: addressing climate change and providing a natural habitat for wildlife.*

*The agri-food industry is Alberta's largest employer (see Appendix A).*

*Alberta's agri-food sector in 2020 was a \$56 billion industry, with total sales beating that of Alberta's oil sales in 2020 (see Appendix B).*

*It's rural and urban; traditional and high tech, and it touches everyone.*

*And Alberta's agri-food industry is a platform for renewed growth - in jobs, investment, and economic development.*

## **AT A GLANCE ...**

The agri-food industry in Alberta comprises everything from farm production to food processing and beverage manufacturing, and includes grocery sales points and food services. It is everywhere and touches everyone.

Primary agriculture is the foundation of Alberta's agri-food industry. There are approximately 40,600 farms and over 50 million acres of total farmland area dedicated to crop and livestock production (Leitch 2018; Statistics Canada 2016a). In 2019, Alberta's primary agriculture sector contributed \$14.0 billion in farm cash receipts (Statistics Canada 2020a) and employed 49,000 persons (Statistics Canada 2020b). The food and beverage processing sector is the largest manufacturing employer in the province, employing 23,000 people (Uwizeyimana 2018) and accounting for \$15.5 billion in manufacturing sales (Statistics Canada 2020c).

Alberta contributes 16 per cent of Canada's primary agriculture GDP (crops and animal production) (Statistics Canada 2020d). The province's top five agriculture products are beef, canola, wheat, pork, and dairy, although peas and pulse crops are gaining ground (Statistics Canada 2020a). Alberta is also the largest honey producer in Canada, exporting this product around the world (Statistics Canada 2020e).

Alberta leads the nation in cattle inventory, accounting for more than 41 percent of Canada's total herd (Statistics Canada 2016b). Almost three quarters of Canadian beef processing occurs in this province (Carlberg 2020). The province is recognized as an experienced pork exporter of fresh and processed pork products, producing 9 percent of Canada's hogs (Statistics Canada 2020a). And Alberta is globally respected for livestock genetics including semen, embryos, and breeding stock, as well as a range of technical and consulting services.

Alberta produces about one third of Canada's total wheat and canola production, behind only Saskatchewan (Statistics Canada 2020g). Four of the world's largest vegetable oil processors have invested significant capital in the province to crush and provide value-added packaged oil, shortening and margarine (Government of Alberta 2018). And, as outlined later in this chapter, value-added processing of both crops and livestock has the potential to grow significantly in the next decade.

Alberta exported \$11.6 billion in primary and processed agri-food products in 2019 and is the third largest exporter of agri-food products in Canada, after Ontario and Saskatchewan (Chen 2020). Simply put, Alberta helps feed the world. 65 per cent of Canada's crops and 40 per cent of its livestock production are exported (Montel 2016).

During the Covid-19 crisis of 2020, Canada's exports declined year-over-year by 10 per cent. Remarkably, in this tumultuous year, Canada's primary agri-food exports grew by 10 per cent, and our food and beverage products exports grew by 5 per cent year-over-year (Statistics Canada 2020h). This is the tremendous growth potential we want to tap into.

See Appendix C, Figures 1 through 6 for more details on the province's and country's top agri-food products and exports, and its major trading partners in these products.

## **A FUTURE GLOBAL NEED ...**

Alberta's agriculture is a success story in feeding a growing global population. In 1870, an acre of land produced ten bushels of wheat (Canada 1974). With the "green revolution" of the mid-twentieth century, advances of mechanization and selective breeding resulted in large improvements in yields. With the advent of precision agriculture methods, 2020 production yields increased over five fold from that 1870 starting point to 56 bushels per acre in the province (Statistics Canada 2020g). But more is required.

By 2050, the world is expected to be home to over nine billion people, with the largest growth in Asia and Africa. Forecasts reveal a 70 per cent increase in food production will be required to help feed the world (FAO 2009). Alberta's agri-food industry knows it must produce more and better, and do it with less – less land, less water, less inputs, and less environmental impacts. Alberta farmers and ranchers are committed to the challenge and recognize that they will play a role in producing enough food to feed the world.

Alberta's current export markets are diverse — most of our beef production goes to the United States, while our pork, wheat and canola exports reach China, Japan, Indonesia and many other markets (Chen 2020). Our eyes are focused on Asia. With 2.3 billion people predicted to comprise China and India's middle class by 2030, this market aligns with Alberta's location and logistics excellence (Hamel 2019). In addition to being a valuable market for other Alberta agri-food products, this fast-growing Asian market is demanding more protein. China's economic growth, emerging middle class and rapid urbanization are increasing beef demand, while their domestic beef production is lagging (Li, Yan and Zan 2018). The world is expected to consume more meat in 2021 than ever before. The United Nations Food and Agriculture Organization (FAO) projects that global meat consumption will rise by 12 per cent from 2019 to 2029 (FAO 2020). Alberta is poised to meet that need.

Alberta's agri-food industry is also in a strong position to serve the changing appetite of Canadians and the western world. Just as Asian developing countries are rapidly expanding demand for animal protein, developed countries, including Canada, have a strong domestic demand for meat, and in addition are increasing their demand for plant proteins (Henchion et al 2017). Consumers' habits are changing, and fast: the global market for alternative proteins is expected to grow at 14 per cent per annum by 2024, making up a third of the world protein market by then, and the global plant-based protein market is expected to reach Can\$13.1 billion by 2022 (National Research Council Canada 2019). Alberta is a major producer of beef and pork, and is the home of some of the highest quality pulses including peas, lentils and chickpeas. This makes Alberta an attractive global leader in both animal and alternative proteins.

Consumers want quality, safe, affordable, and nutritious food they can trust, and importing jurisdictions need stability and reliability in their partners. Canada's agri-food production is ranked number one for quality and safety (Global Food Security Index - Rankings and trends 2020). In addition, Canada's environmental goals continue to be prioritized in our economic recovery plan. Indeed, Canada's agriculture industry ranks highly in parameters such as nitrogen and pesticide use, compared to our OECD peers (McKittrick 2018). Alberta's agriculture industry is actively contributing to climate solutions. The sector is a global leader in zero-tillage practices, developing its biofuels industry, and using other operations practices such as a voluntary carbon offset program, rotational grazing practices, and variable rate technology for fertilizer application (Baah-Acheamfour et al 2014; Kassam and Friedrich 2010).

Alberta has an abundance of natural resources primed and waiting to tackle the increasing global demand for agriculture and agri-food products. The province's resources also include excellent universities, colleges and polytechnics, a growing innovation network, and research and development centres such as the Food Processing Development Centre in Leduc; a state-of-the-art facility designed to provide research, product development and commercialization services to local, national, and global food companies. In addition, public/industry approaches like the new Results Driven Agriculture Research (RDAR) are funding research that will benefit farmers, ranchers and consumers.

See Appendix C, Figures 7 through 9 for global forecasts for some of the province's biggest agri-food products.

## **A FUTURE ALBERTA VISION ...**

The past decade has seen seismic shifts in how Alberta produces, consumes, and uses food and fibre. For example, drones went from expensive playthings to commodity equipment, and crop genome sequencing went from high-cost research to an affordable service. E-commerce and social media marketing allow consumers to learn about and buy food online and then have it delivered to their front door, often directly from the producer, shrinking and changing the supply chain.

The next ten years are expected to see similarly dramatic change. Improved connectivity and increased digitalization of our lives, our information, and our tools will alter how we

move agricultural products from producer to consumer. Even forces such as how people communicate through the internet will have cascading consequences for food safety and consumer behaviour as they shape data flows and inform decision-making.

Currently, a dominant narrative in agriculture is around precision agriculture and digital farming. While the seeds of this young segment of agriculture were planted in the 2010s, it will blossom in the 2020s. With mega-companies now entering the industry, led by Canadian leaders such as TELUS Agriculture and Nutrien, new digital infrastructure is providing a foundation for innovative solutions. The connected farm is the farm of the future – everything will be connected: bins, shops, trucks, farm equipment, moisture probes, weather stations and beyond. This opens new opportunities for data and information consultants, new means of applying crop inputs, and greater precision for grain marketing, crop insurance and financing. The market for the agriculture Internet of Things (“IoT”) is expected to grow to USD \$20.9 billion (Can\$25.2 Billion) by 2024 (Agriculture IoT Market Worth \$20.9 Billion by 2024 – Exclusive Report by MarketsandMarkets 2019), and Alberta’s budding technology ecosystem, led by the Smart Farm at Olds College, is gaining global recognition.

What are other mega-trends changing the face of agri-food? Consolidation – farms, ag-tech companies, retailers, manufacturers – is expected to continue. This leads to a need for ever more business savvy with a laser focus on finances and operational efficiencies.

Biologicals meant to replace synthetic chemicals, and to enhance crop and animal production, are in their early stages of commercialization. Many of these intriguing new technologies come from smaller companies and university labs. Alberta has a number of these innovative companies and with initiatives like the Creative Destructive Lab – Rockies, they are capturing the interest of larger global firms. That’s one of the reasons that global accelerators like THRIVE have chosen Alberta as home for their Canadian activities.

Production practices on farms and ranches are continually adapting. Soil health is a high priority. Alberta led the way with zero tillage practices starting in the 1970s. Banding fertilizer to maximize efficiency and minimize nutrient loss originated in Alberta. Today, rotational grazing is extensively practiced on beef cattle and bison operations. And while ‘regenerative agriculture’ is a relatively new term, and more cover crops and biodiversity practices are being included, in many ways this is just an extension of modern agriculture adjustments that have been occurring for generations.

Major food companies and food retailers are influencing the future of the farm and the entire food supply chain. Food companies, reflecting the desires of consumers while marketing opportunities to differentiate, are demanding greater traceability and data on how food is produced. Technology plays a key role and technologies like AI, quantum computing, augmented reality, sensor technology, robotics and blockchains are advancing quickly. They are also seen as a means of improving efficiency and assisting with labour attraction challenges and enterprise profitability.

Changing consumer eating habits and their desire for new food products are opening new doors for Alberta’s agri-food industry. Plant-based foods are increasing in demand. Vertical farming and greenhouses, in both urban and rural areas, have a tremendous

potential to replace imported produce, vegetables and fruit. And new protein ventures like indoor fish farms and insect farms are emerging in Alberta. Although only a small part of the province's agriculture sector since its legalization, the cannabis market impact on GDP more than doubled from 2018 to 2019 and continues to grow (Statistics Canada 2020d). And certified organic farms, while currently representing a very small percentage of Alberta farms, increased in number by over 30 per cent from 2011 to 2016 (Statistics Canada 2016c).

The interest and demand for clean energy is also taking root, and farmers are participating. Take a drive and look at the number of solar panels on farms today — for their own use and to add to the grid. Bio-digestors turning waste into energy are not uncommon. Seed companies are adjusting genetics to develop crop varieties that deliver enhanced biofuel potential.

And all this is attracting the attention of investors — local and international, private equity and venture capital. The agri-food industry is hot. The speed of change is rapid. For those thinking agriculture involves images of their 'grandparents' farm, much has changed!

## **OPPORTUNITIES**

The twenty-first century is the agri-food industry's time to shine, and Canada — and more specifically Alberta — is sitting in an ideal position to lead and capitalize. The industry is broad, diverse, and full of potential, both for new graduates looking to for an exciting career and those with experience in other industries looking to transition.

The agri-food industry is poised for significant growth — growth in jobs, investment, economic activity, and a positive solution to issues important to Canadians and global consumers. Alberta has the building blocks to be a global mega-power: abundant natural resources, a strong network of research and development facilities, one of the lowest users of pesticides per-hectare regions in the world, political stability, and goodwill to encourage investment, a growing primary and secondary processing sector, a respected regulatory system, and access to a sophisticated, ethnically diverse consumer base.

In this changing and dynamic world, Alberta's land, water, air, cold winters, and natural resources provide a foundation of strength. Our entrepreneurial background, reputation for excellence, regulatory standards, and the sophistication of our industry players are further building blocks. When properly nurtured with enhanced technology and focused investment, growth and success will be the outcome.

The number of opportunities is extensive — here are three for consideration, developed by the Agriculture and Forestry Sector Table for the Economic Recovery Council in 2020 (Strategic Action Plan 2020):

## **VALUE-ADDED PROCESSING**

The greatest positive impact on Alberta's economy comes from adding value to its commodities. Whether creating fertilizer from natural gas, turning peas into protein, or processing livestock into food products or pet food, there is value and jobs growth

waiting to be unleashed. Alberta food processing and manufacturing comprised 19 per cent of the total agri-food sector GDP for 2019, and grew at an annual rate of 2.8 per cent from 2010 to 2019, almost double the average growth rate of Alberta's non-oil and gas industry sectors for that period (Statistics Canada 2019). With this high growth rate, the sector has real potential to help kickstart the flagging Alberta economy in 2021.

It starts with seeing the opportunities; look at the many food and consumer products that begin with quality Alberta agriculture raw materials — think pasta, beer, prosciutto. Then consider imports where modern technology and legislative tweaks allow Alberta companies to offer superior quality and price-competitive products — think strawberries, tomatoes, lettuce. And imagine what could be done through improved value-chain integration with the province's natural gas resources (Government of Alberta 2020) and access to water into new agri-food investments like greenhouses, processing plants, making your own electricity, and establishing new industries and products from production and food waste. Then 'without any compromise' we reduce red tape, unleash the entrepreneurs, and watch the creativity of the investors from this almost zero-cost government investment.

## **CAPITALIZE ON THE SUSTAINABLE ECONOMY**

Agriculture and forestry hold the secret to carbon capture and a positive solution to climate change. Alberta, with experience in carbon markets and agriculture-focused carbon offset systems, is in a position to lead in an emerging, high-growth, international carbon market. The global carbon offset market is valued at \$50 billion, to potentially as high as \$800 billion (Pollitt 2019).

Alberta now has the opportunity to lead the way in longer-term sustainability goals, through the conceptualization of a larger carbon market for North America, anchored not only in Alberta's heavy industry and agriculture, but potentially other trading jurisdictions as well. The role of agriculture emissions reductions through large scale sequestration and optimization of technologies and measurement protocols will be key in the development of this carbon offset market. The Government of Alberta has taken the initial steps in exploring this value proposition with the *Carbon Program*, recently launched by the Simpson Centre for Agricultural and Food Innovation and Public Education (School of Public Policy 2021). The Carbon Program's mandate consists of detailed measurement of Alberta's agriculture industry greenhouse gas emissions, in addition to developing policy recommendations that will reduce overall emissions: this will include a close look at the carbon sequestration potential of agriculture operations. Not only does this attract investment, but the sustainable economy will deliver another income stream for Alberta farmers, ranchers and the agribusiness community while respecting and enhancing our land, water and air.

## **CATALYZING TRADE AND EXPORTS**

Trade and exports play a cornerstone role in the present and future of Alberta's agri-food industry. As noted earlier (see also Appendix C), global demand for agriculture and agri-food products are forecast to continue to grow substantially to 2050 and beyond.



Canada is a partner in the CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) with some of its major trading partners such as Japan and Malaysia. Canada is also a party to USMCA (United States Mexico Canada Agreement) and CETA (Canada-European Union Comprehensive Economic and Trade Agreement). However, preferential trade agreements with two of Canada's largest potential export markets – China and India – do not yet exist. With the groundwork laid by its current trading position with those entities, Alberta has the opportunity to seek enhancements to existing trade volumes and relationships.

Alberta can also take advantage of opportunities created by countries that have chosen to change their export strategies due to market volatility and Covid concerns (Yeung and Kerr 2021).

By being strategic, proactive, and investing to support our strengths, Alberta's growth in trade and exports hold potential for double digit growth.

## **CHALLENGES AND OBSTACLES**

Where there is opportunity, there are also challenges. Some of the larger challenges are summarized below:

### **REGULATORY HURDLES AND STIMULATING INVESTMENT**

Canada's food safety and quality are excellent, but now that has to be combined with efficiency of regulation to enable the industry to take off and lead the way in economic recovery. Modernization is required at the national, provincial, and municipal levels. British Columbia recently started a modernization process of its meat production and processing regulations (Province of British Columbia 2020), and Saskatchewan makes regular regulatory modernization efforts as well (Government of Saskatchewan 2021). Alberta now has to focus its own *Cutting Red Tape* effort specifically on the agriculture and agri-food industry, including areas such as regulations for small scale meat processors, streamlining and coordination of the business and environmental aspects of food processing sector applications to name a few (Government of Alberta 2021a). Streamlining application processes can reduce risk and uncertainty for investors, making Alberta more attractive as an investment choice.

Industry growth rate is tied to regulatory environment and investment risk. Many aspects of the agriculture industry are capital intensive, and while investor interest in the agri-food industry is strong and growing, Alberta can do more to create the proper investment environment and take actions that will stimulate investment. Canada is currently ranked twenty-third in the World Bank's *Ease of Doing Business rankings*, while New Zealand, the United States and Australia all rank higher (World Bank 2021). Alberta has to take some innovative approaches to enhancing its investment conditions.

Alberta, and Canada, have seen consolidation in many aspects of the agri-food industry due in part to many policies that encouraged this (Carlberg 2020; Fawcett-Atkinson 2021). In addition to a favourable corporate tax rate (Government of Alberta 2021b), Alberta can enhance its investment climate for value-added processing, bio-products,

and ag-tech development, as other provinces have already done (Fawcett-Atkinson 2021; Government of Nova Scotia 2021; Government of Ontario 2021).

## **RURAL CONNECTIVITY**

Agriculture is increasingly dependent on technology and the industry's success relies on connectivity. High speed technology with ample broadband width is needed to unleash connectivity and enable rural Albertans and businesses to participate, perform and capitalize on twenty-first century opportunities.

The Covid crisis highlighted the need for reliable high speed internet services for all Albertans. Currently, 87 per cent of Canadian households and businesses have reached the Canadian Radio-television and Telecommunications Commission (CRTC) performance parameters (CRTC 2021). However, this is true for only 46 per cent of rural communities. Broadband development is progressing at slower than anticipated rates, and this lack of broadband comes at a cost when considering application of various precision agriculture systems which rely on connectivity and big data (Mark 2016). In addition, Canada has the least competitive prices for its internet services when compared globally (Digital Fuel Monitor 2020). A recent study showed the critical nature of broadband to the agriculture industry, estimating a potential gain of 18 per cent in U.S. market value if access to broadband and adoption of digital agriculture were better matched to producer demand (Nelson 2019).

The speed at which Alberta can improve its broadband coverage into its rural areas directly affects the ability of Alberta farmers and ranchers to employ AI technologies, sensor use, and other precision agriculture automation applications — faster implementation will accelerate economic growth.

## **LABOUR**

Labour is a challenge for the agri-food processing sector and to a lesser degree, primary agriculture. This challenge was flagged in the Barton Report (Barton 2017). This challenge can be addressed through a combination of training and re-training, robotics, technology and immigration.

The COVID-19 pandemic exposed weaknesses in Canada's Temporary Foreign Worker (TFW) program, highlighting Canada's dependence on the constant seasonal use of TFW labour for over fifty years, and how this labour force is really a permanent part of the industry (Falconer 2020). This reinforces the need for more workers, with the industry currently constrained due to a lack of labour. New measures such as higher immigration targets can help mitigate these constraints.

## **CHAMPION AGRI-FOOD AND TACKLE MISINFORMATION**

Alberta's agri-food industry is a well-kept secret. This needs to change if the province, nation, and industry are going to achieve their full potential. Agri-food is a growth industry that should be attracting Canada's brightest young minds, substantially more investment, and the respect of political and corporate leaders. When awareness is elevated, both domestic and international benefits will be realized.

The 2017 Barton Report (Barton 2017) drew public attention to the untapped growth potential of Canada’s agri-food industry. When the pandemic hit in 2020, the agri-food sector was deemed an essential service. Both have elevated the industry’s impact on Canadian socio-economic prosperity which has been quietly taken for granted. Now Alberta’s agriculture sector has the potential to transform and become a “super sector,” with a singular focus on sustainable socio-economic growth that is integrated throughout all aspects of our lives (McInnes 2019). In conjunction with the business recommendations captured in the Barton Report, a major, focused outreach program including opportunities for dialogue and two-way communication can raise the sector’s profile and frame it to appeal to more Albertans (Wilk et al 2014). Albertans, Canadians and the world are encouraged to see what the province’s agri-food industry is delivering: take a virtual or in-person tour of how to turn Alberta wheat into branded pasta; how grazing practices are enhancing grasslands and sequestering greater amounts of carbon; experience the technology of the Olds College ‘Smart Farm’ or robot vegetable production in Coaldale and prosciutto in Acme.

Indeed, one of the challenges faced by industry is that the primary agriculture sector employs only 2.1 per cent of Albertans — the distance from our food to our plate has never been so great (Statistics Canada 2020b). A positive messaging campaign can be the purveyor of little-known agri-food industry facts for Albertans, and will help to share knowledge about our domestic and global food system with the general public. High profile, trusted, non-partisan messengers can help to facilitate this dialogue, influencing and capturing consumer interest, doing so by targeting specific food issues rather than painting with a broad brush (Jerit and Zhao 2020). The agri-food community recognizes the importance of working collectively and collaboratively with industry and governments to address misinformation and elevate the profile, awareness, and opportunities the industry provides.

## **RISING TO THE OPPORTUNITIES**

*Strategic. Action. Plan.* (Agriculture and Forestry Sector Table 2020) These three ingredients pave the path for Alberta’s agri-food success. The *Strategy* calls for alignment with two significant global drivers: the heightened importance of a trusted and reliable source for food security, *and* the consumer’s demand for a sustainable economy. The *Actions* needed include a number of coordinated, specific tasks on the policy front designed to enhance economic growth and remove barriers. The *Plan* involves aligning the *Actions* with the *Strategy*, and combining the ABCs (Agile, Bold and Creative) to deliver job creation, investment and economic activity benefits while protecting and nurturing our natural resources for future generations.

From a strategic perspective, Alberta can play a leadership role by encouraging Canada to provide the right business conditions to advance these opportunities: through regulatory reform; by reducing interprovincial trade barriers, including harmonization of standards and licensing requirements for skilled labour and equipment; and by introducing clearer and more accessible metrics, measurements, and market information.

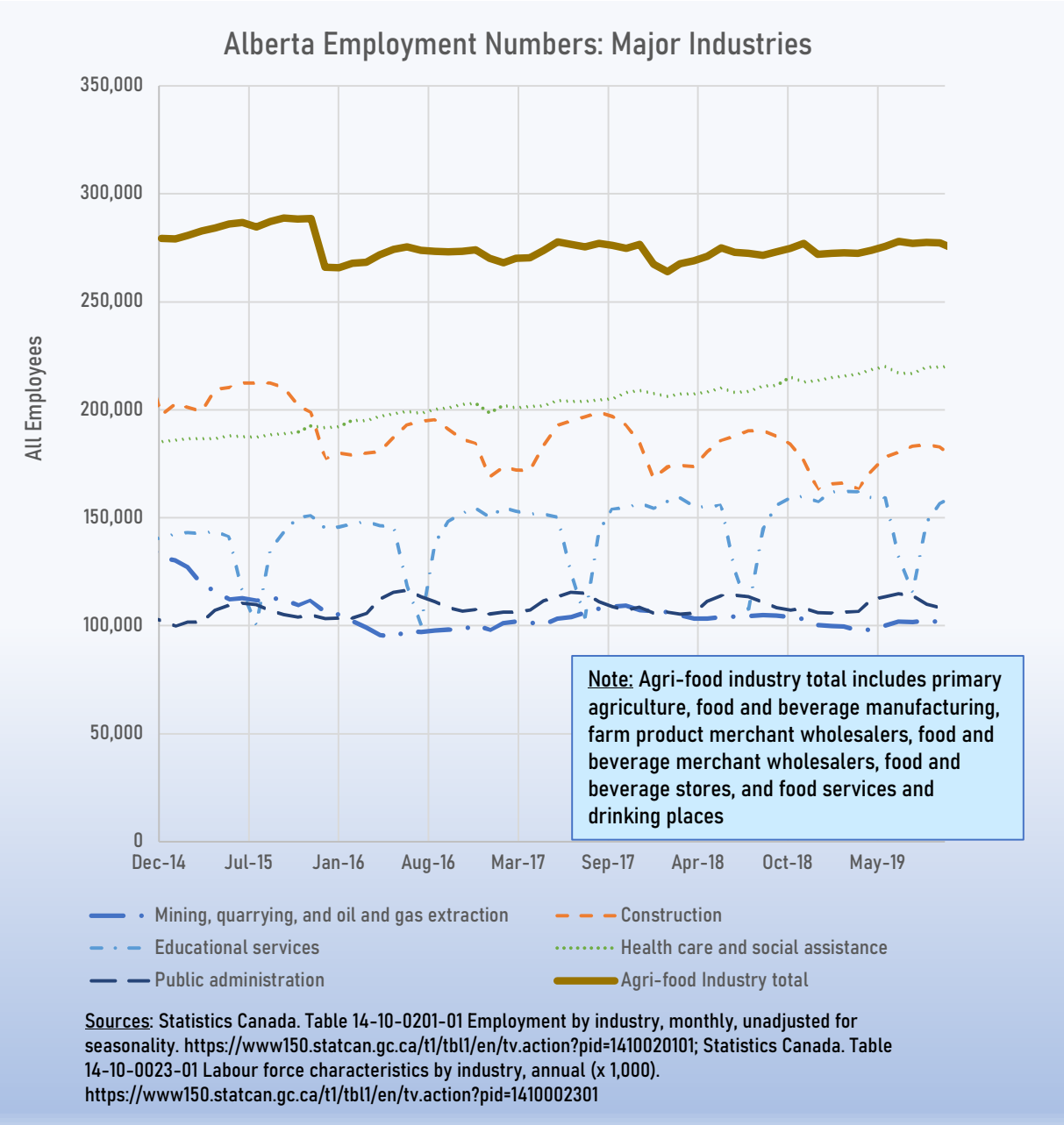
Longer term strategies that will impact the province's agri-food system efficiencies and connectivity to markets include national projects such as the Canadian Northern Corridor, a multimodal corridor linking Northern and near-Northern Canada from east to west, and providing an integrated connector for transport of energy, goods, electricity and people (Fellows et al. 2020).

Today, much of Alberta's agri-food industry is commodity-centric. More than half of all crops and livestock products are exported to another country to be processed, and then finished products are imported back here for sale. Jobs and economic value will grow by increasing ingredient processing within Alberta, with a goal of moving to branded food manufacturing. And along the way there is ample opportunity for the development of new by-product manufacturing, such as bioplastics made from crop starches.

Progress and performance start with a plan, and Alberta's agri-food industry will benefit greatly from a plan that spans beyond election cycles and involves the collective minds of industry and government. The plan needs to align to Alberta's natural advantages while reflecting opportunities, expectations, and limitations. Innovation and collaboration are critical and needs to be encouraged in all components of the supply chain. These will improve efficiency and profitability and elevate the perception and reputation of the industry and the Province.

And finally, the plan needs to be implemented with excellence. When that occurs, the industry is stronger, the benefits are realized, and Alberta's gentle giant awakens.

# APPENDIX A:



## APPENDIX B: ALBERTA AGRI-FOOD INDUSTRY TOTAL SALES IN 2020 COMPARED TO ALBERTA GROSS CRUDE OIL SALES, 2020 AND HISTORICAL

Agri-food Industry Total Sales	2020 Sales, Can\$ Billions
Farm cash receipts [1]	\$ 14.26
Food manufacturing [2]	\$ 15.48
Beverage manufacturing [3]	\$ 1.07
Pesticide, fertilizer and other agricultural chemical manufacturing [3]	\$ 2.06
Food and Beverage retail [3]	\$ 16.64
Food service [4]	\$ 7.47
<b>TOTAL</b>	<b>\$ 56.96</b>

Sources:

[1] Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x 1,000)  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210004501>

[2] Statistics Canada. Table 16-10-0048-01 Manufacturing sales by industry and province, monthly (dollars unless otherwise noted) (x 1,000)  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1610004801>

[3] Statistics Canada Data from Mr. Kyle Burak, Senior Economist, FCC - personal communication May 6, 2021

[4] Statistics Canada. Table 21-10-0019-01 Monthly survey of food services and drinking places (x 1,000)  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2110001901>

### Alberta Gross Crude Oil Sales

Year	Alberta Total MMbbl	Avg MMbopd	Avg Price, \$/bbl	Can\$ billions
2016	<b>1046.09</b>	<b>2.87</b>	<b>33.26</b>	<b>34.79</b>
2017	<b>1142.12</b>	<b>3.13</b>	<b>42.52</b>	<b>48.56</b>
2018	<b>1244.78</b>	<b>3.41</b>	<b>47.76</b>	<b>59.45</b>
2019	<b>1257.16</b>	<b>3.44</b>	<b>48.29</b>	<b>60.71</b>
2020	<b>1196.19</b>	<b>3.28</b>	<b>32.77</b>	<b>39.20</b>

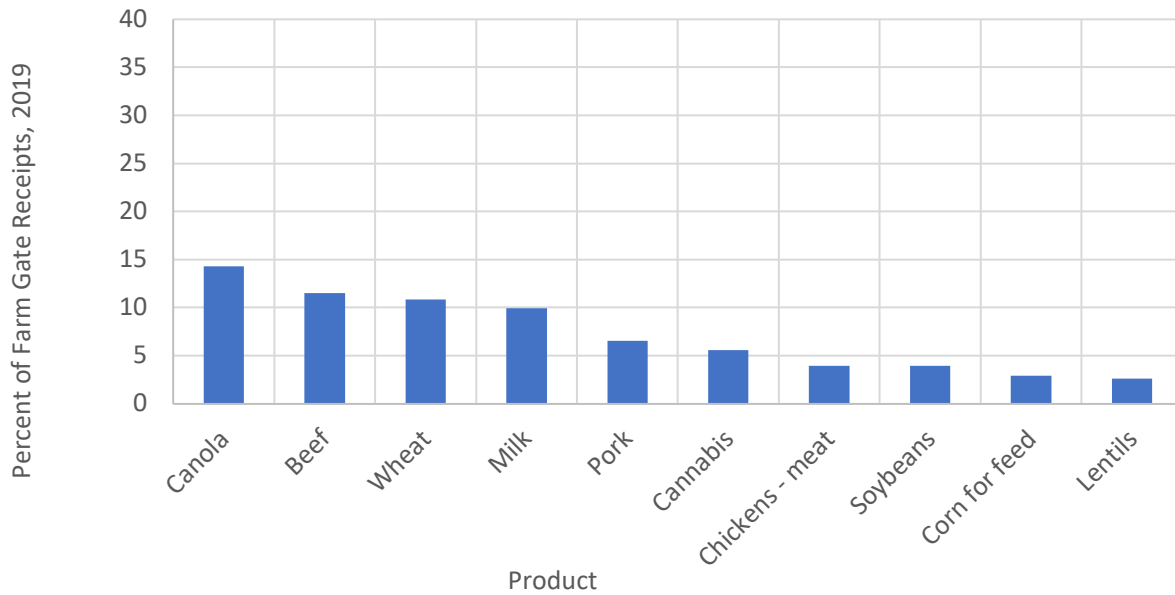
Sources:

Canadian Energy Regulator, "Estimated Production of Canadian Crude Oil and Equivalent," accessed May 27, 2021. <https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/crude-oil-petroleum-products/statistics/estimated-production-canadian-crude-oil-equivalent.html>

Canadian Energy Regulator, "Commodity Statistics," accessed May 27, 2021. <https://apps.cer-rec.gc.ca/CommodityStatistics/Statistics.aspx?language=english>

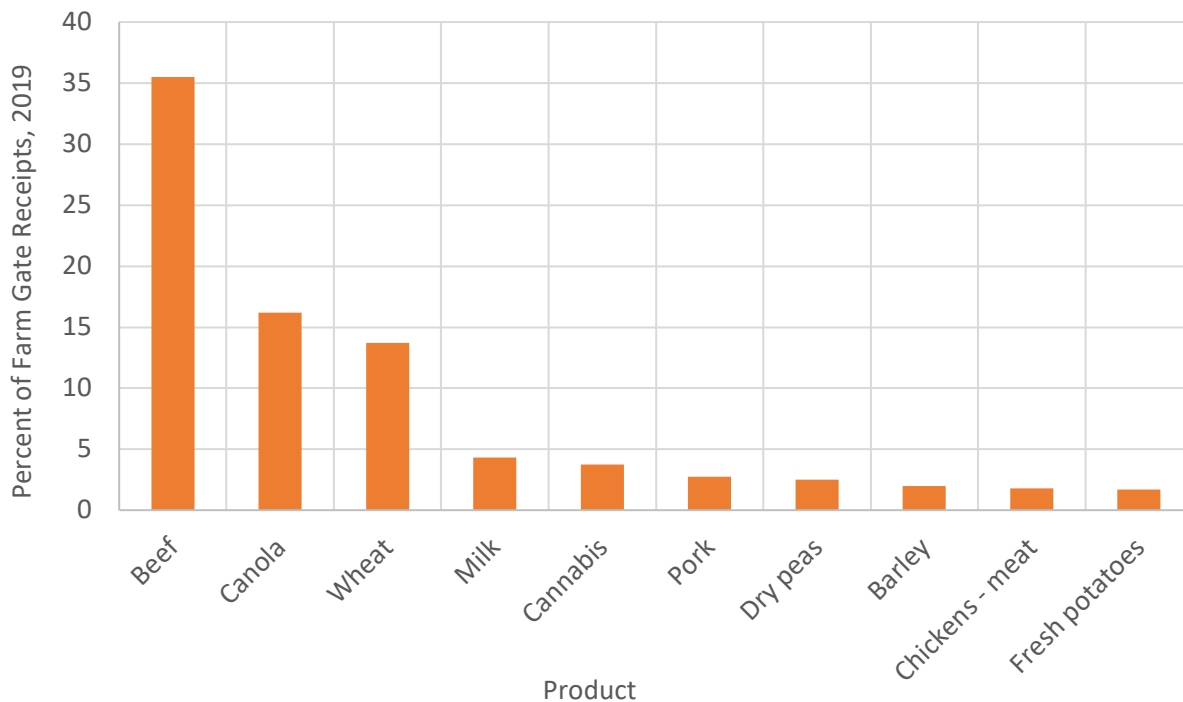
## APPENDIX C:

Figure No. 1: Canada: Top Agriculture Sector Products - by Farm Gate Receipts 2019



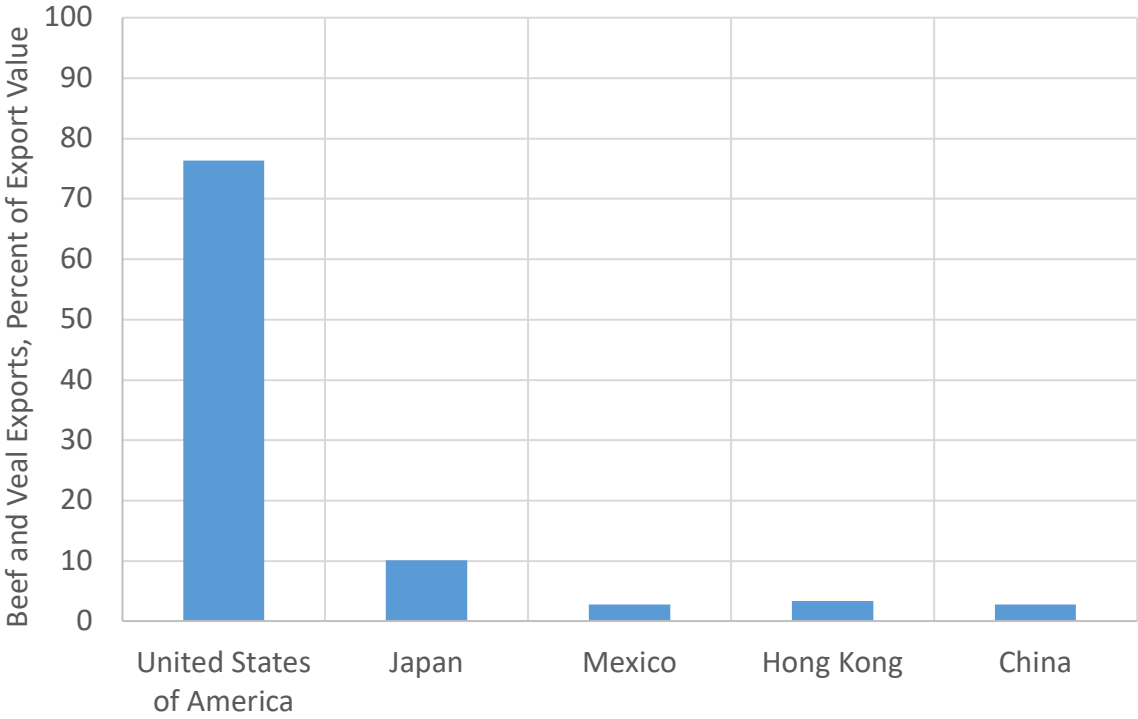
Source: Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x 1,000).  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210004501>

Figure No. 2: Alberta: Top Agriculture Sector Products - by Farm Gate Receipts 2019



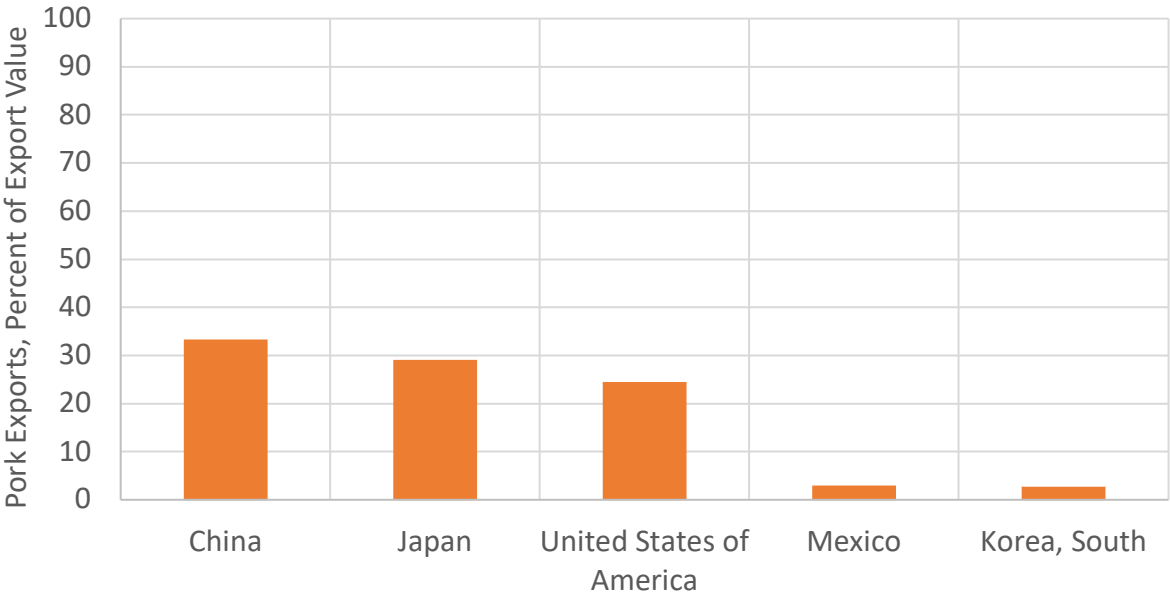
Source: Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x 1,000).  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210004501>

**Figure No. 3: Canada Beef and Veal Exports - Top Five Countries, Jan. - Aug. 2020**



Source: "Red meat exports by country - year to date cumulative," Agriculture and Agri-Food Canada, page accessed 2020-10-26. <https://www.agr.gc.ca/eng/animal-industry/red-meat-and-livestock-market-information/exports/red-meat-exports-by-country/?id=1419965032803>

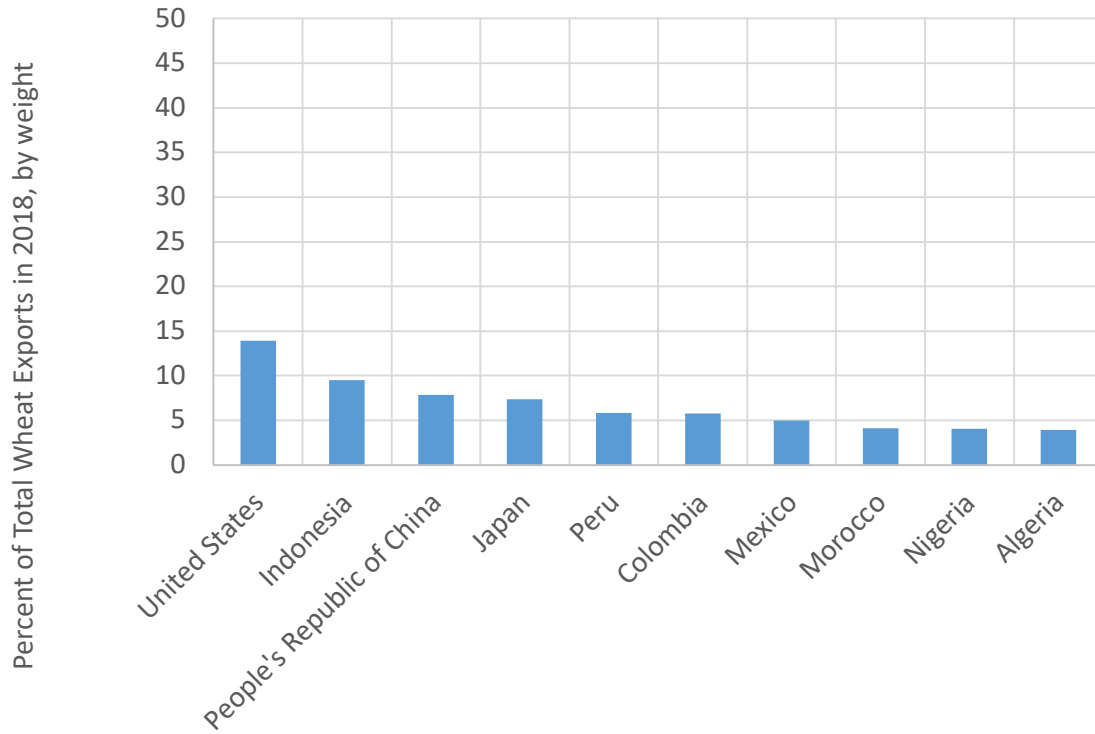
**Figure No. 4: Canada Pork Exports - Top Five Countries, Jan. - Aug. 2020**



Source: "Red meat exports by country - year to date cumulative," Agriculture and Agri-Food Canada, page accessed 2020-10-26. <https://www.agr.gc.ca/eng/animal-industry/red-meat-and-livestock-market-information/exports/red-meat-exports-by-country/?id=1419965032803>

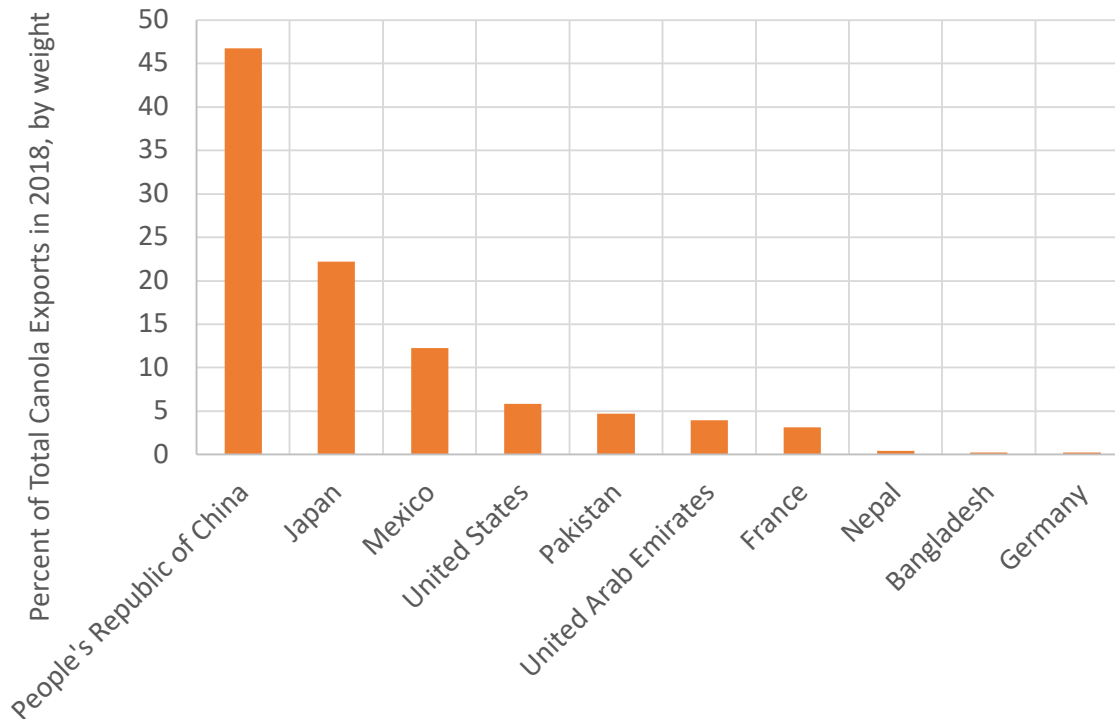


**Figure No. 5: Canada Wheat Exports – Top Ten Countries 2018**



Source: Statistics Canada. Table 32-10-0008-01 Exports of grains, by final destination.  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210000801>

**Figure No. 6: Canada Canola Exports – Top Ten Countries 2018**



Source: Statistics Canada. Table 32-10-0008-01 Exports of grains, by final destination.  
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210000801>

Figure No. 7: OECD-FAO Global Consumption Forecast: Wheat

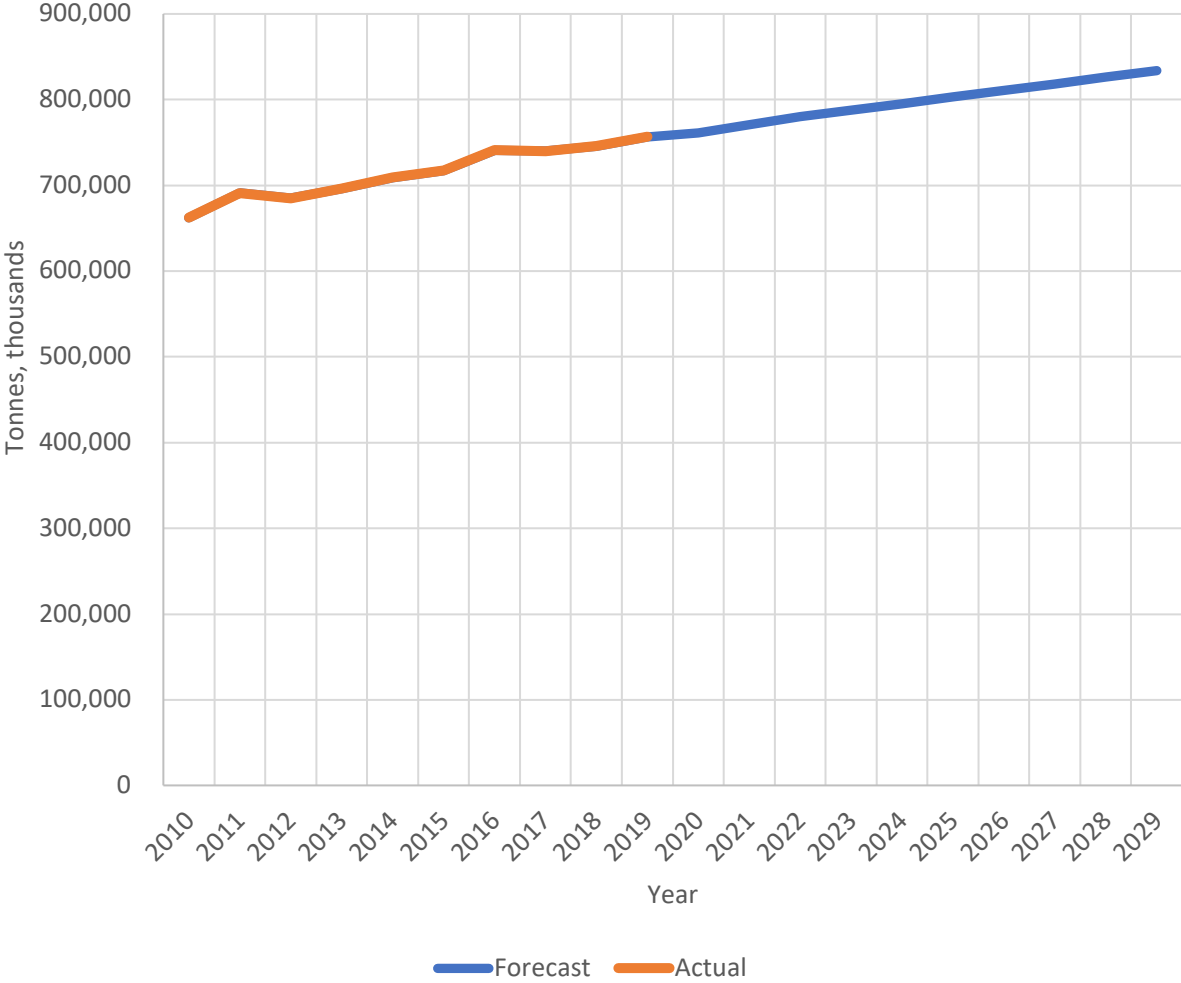


Figure No. 8: OECD-FAO Global Consumption Forecast: Beef and Veal

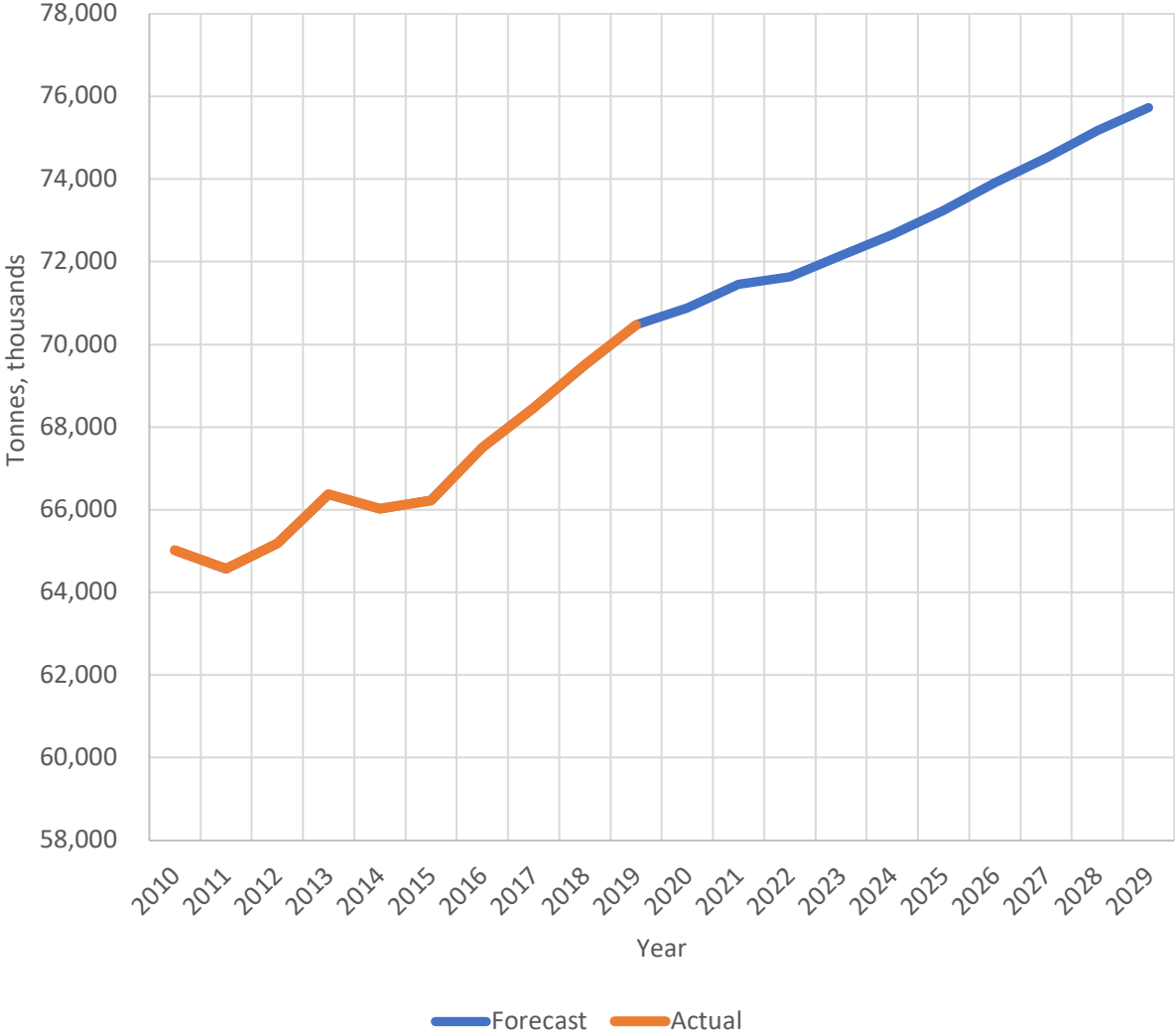
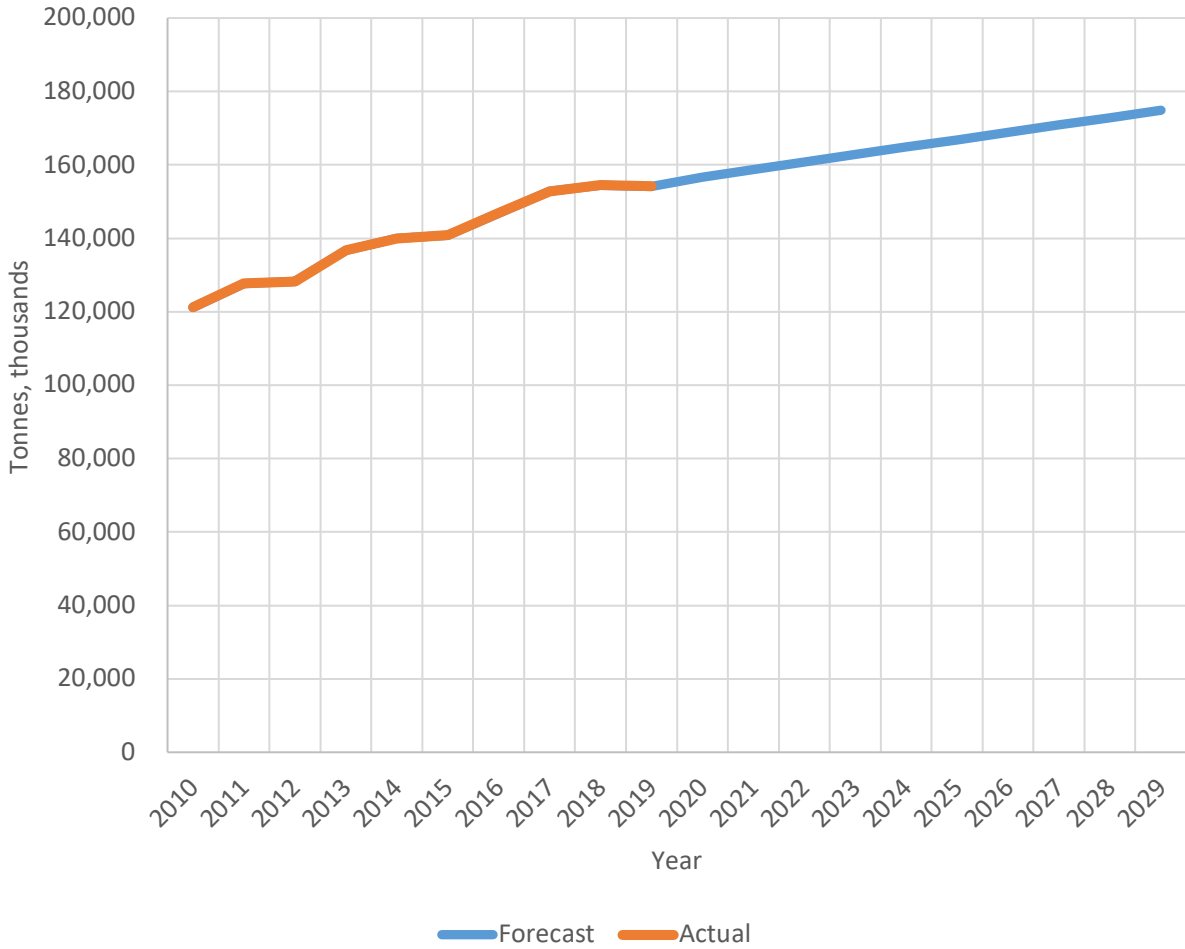


Figure No. 9: OECD-FAO Global Consumption Forecast: Oilseeds other than Soybean



Source: "OECD-FAO Agricultural Outlook," Accessed 2021-04-23.  
[https://stats.oecd.org/viewhtml.aspx?datasetcode=HIGH\\_AGLINK\\_2020&lang=en](https://stats.oecd.org/viewhtml.aspx?datasetcode=HIGH_AGLINK_2020&lang=en)

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Prior to joining the Simpson Centre, Karen's policy work focused on energy and the environment in Alberta's energy sector. Ms. Spencer holds a BSc in Chemical Engineering and a Master's Degree in Public Policy. Her focus on agriculture policy is linked to both her experience in Alberta's environmental regulatory system, and her ownership of a small cow-calf operation located outside of Consort, Alberta. Recent research includes study of greenhouse gas emissions from Alberta's agriculture sector, and developing practical policy that can help to reduce emissions while enhancing economic growth.

Her work continues to aim toward engaging with stakeholders and increasing transparency and knowledge in the areas of agriculture policy, climate change in Alberta, and policies that can marry the concepts of sustainability and economic growth and recovery.

**Kim McConnell, CM** was a founder and the CEO of AdFarm and led this Canadian-headquartered agency to become one of the largest and most respected agricultural marketing communications firms in North America.

Kim has been the catalyst behind many major industry ventures including an initiative to build greater public trust in food and farming.

Kim is also the recipient of many national business awards including 'Agri-Marketer of the Year'. In 2012 he was inducted into the Canadian Agricultural Hall of Fame. And in 2018 he was appointed a Member of the Order of Canada.

Kim has a BSc Agriculture from the University of Manitoba, is a director on a number of corporate boards throughout North America, and a director on community organizations including Calgary Stampede Foundation, Canadian Agri-Food Policy Institute (CAPI), and the Canadian Centre for Food Integrity.

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