

Alberta Beef Competitiveness Study

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Alberta Beef Competitiveness Study

Part A: Building Resiliency in Alberta's Beef Processing Industry

Part B: Feasibility Assessment of Canadian Wholesale Beef Market Reporting

A supplemental on Price Discovery and Industry Margins in the Beef Industry

Funding for this project was provided, in part, by the federal and provincial governments through the Canadian Agricultural Partnership.

Industry Partners Announce the Completion of Report on Resiliency in Alberta's Beef Processing Industry

March 14, 2023 - Alberta Beef Producers (ABP), Alberta Cattle Feeders Association (ACFA), and the Canadian Cattle Association (CCA) are pleased to announce the completion of a resiliency report for Alberta's meat processing sector as Part A of the Alberta Beef Competitiveness Study.

"Building Resiliency in Alberta's Beef Processing Industry," inspired by growing interest in diversifying and building capacity and resiliency, identifies barriers and actionable recommendations for the meat processing sector.

"The challenges for new or expanded packing capacity are many," said Dennis Laycraft, Executive Director, CCA. "This report helps prioritize areas of focus for governments, industry, and other proponents."

Of the top five identified barriers to building resiliency in Alberta's beef processing industry, ABP, ACFA, and CCA are drawing particular attention to the recommendations around:

- addressing immediate labour constraints,
- harmonizing processing standards between jurisdictions, and
- increasing support for processors.

With the Alberta Beef Competitiveness Study – Part A now in-hand, the beef industry is prioritizing discussions around the above recommendations through collaborative partnerships between industry and government.

"There has been a significant amount of time and effort from industry and experts examining resiliency in the processing sector, and transparency for boxed beef pricing," said Brad Dubeau, General Manager, ABP. "This is the first step in a long-term process, and we look forward to working with government and industry to address these challenges."

Building Resiliency in Alberta's Beef Processing Industry was prepared by Serecon Inc. and is being published as 'Part A' of the Alberta Beef Competitiveness Study.

Funding for this project was provided, in part, by the federal and provincial governments through the Canadian Agricultural Partnership.

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Industry Partners Announce the Completion of Wholesale Beef Reporting Feasibility Assessment

March 14, 2023 - Alberta Beef Producers (ABP), Alberta Cattle Feeders Association (ACFA), and the Canadian Cattle Association (CCA) are pleased to announce the completion of a feasibility assessment of wholesale beef price reporting as Part B of the Alberta Beef Competitiveness Study.

The report was prepared for ABP by Lee Schulz, an associate professor in the Department of Economics at Iowa State University; and Ted Schroeder, a distinguished professor in the Department of Economics at Kansas State University.

The assessment considers the history, value, and options for Canadian boxed beef reporting. It recommended expansion of current reporting criteria to be more comprehensive and suggests that a mandatory reporting system be considered.

“The proposed changes by Schulz and Schroeder for boxed beef reporting address changes in the market that have occurred since 2016 and many of the concerns raised by industry players,” said Brenna Grant, Executive Director, Canfax and Canfax Research Services. “The broader criteria would be more representative of trade.”

“Producers invest significant dollars into Canada Beef, through the national check-off, each year,” said Janice Tranberg, CEO, ACFA. “They know that the boxed beef price drives value throughout the supply chain. Therefore, the ability for Canada Beef to use this information in their marketing efforts is critical for both packers and producers, particularly in a weak basis environment.”

In addition to the relative U.S. price, the relationship of boxed beef price to fed cattle prices provides an indication of leverage as it shifts up and down the supply chain, and validates fed cattle prices when volumes are thin.

A voluntary Canadian boxed beef report started in May 2003, following BSE, in recognition of the need for domestic price discovery. This boxed beef report was discontinued in March 2020, with processors citing confidentiality concerns and COVID-19-related disruptions.

“Confidentiality is always a concern and therefore robust participation in any price report is necessary,” said Grant. “However, there are options in how data is presented with AAA/AA cutout and primal values being the main point of a boxed beef report.”

The report is accompanied by a literature review on price discovery and beef industry margins, created by Lyndsay Smith of Prime Analytics.

Funding for this project was provided, in part, by the federal and provincial governments through the Canadian Agricultural Partnership.

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Building Resiliency in Alberta's Beef Processing Industry

Prepared For

Government of Alberta
Alberta Beef Producers
Alberta Cattle Feeders' Association
Canadian Cattle Association

Prepared By

Serecon Inc.

December 2022



serecon

December 21, 2022

Mr. Brad Dubeau
Alberta Beef Producers
165, 6815 – 8 Street NE
Calgary, AB
T2E 7H7

Dear Mr. Dubeau:

RE: FINAL REPORT – BUILDING RESILIENCY IN ALBERTA’S BEEF PROCESSING INDUSTRY

We are pleased to provide this final report of our work identifying barriers and opportunities for building competitiveness and resiliency into both provincially and federally regulated processing sectors.

If you have any questions about any element of the final report, please do not hesitate to get in touch with me directly.

Yours truly,

SERECON INC.



Harvey Bradford, MSc, Ag. Econ.

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1.0 Executive Summary

This report identifies barriers and opportunities to build competitiveness and resiliency into the beef processing sector in Alberta. In this report, building resiliency is viewed through the lens of removing existing barriers in order to provide an operating environment that encourages the establishment or expansion of processing capacity.

Barriers for processors of all sizes in Alberta were identified through a combination of background research, an online survey and stakeholder consultations. Over sixty individual stakeholder consultations took place for this work. The online survey was provided to small and medium sized provincially regulated processors via email link followed by a call to prompt participation. Fourteen provincially regulated processors responded to the survey. An additional 60 individual stakeholder consultations were completed for this work. Consultations included provincially regulated processors, federally regulated packers, cattle producers, backgrounders and feeders, industry associations, research institutions, regulatory bodies, and other experts with key insights.

The following barriers have been identified through the research methods applied to this work (Table 1). While there is some overlap between the provincially regulated and federally regulated sectors, the specific concerns differ between the two groups, which is why we have indicated the “level” in Table 1.

Table 1: Processor Barriers

Barrier	Key Processor Barrier Within Category	Level
Labour Shortages	<ul style="list-style-type: none"> • Red tape in Temporary Foreign Worker (TFW) Program • Uncertain pathway to Permanent Residency (PR) • Cost of Labour Market Impact Assessment (LMIA) • Immigration emphasis on education over experience 	Federal
SRM Regulations	<ul style="list-style-type: none"> • Competitiveness relative to United States packing operations. • SRM carve-out requirements in Canada leads to more carcass as by-product going into non-feed uses (e.g., fertilizer). 	
Traceability Requirements	<ul style="list-style-type: none"> • Traceability regulations would require federally regulated packer to report ear tag numbers, RFID tag numbers, truck license plate number, date and time of arrival. • Barrier in the form of added administrative cost to doing business unless technology is given time to catch up (UHF technology vs RFID technology) 	
Food Safety Innovation	<ul style="list-style-type: none"> • Barriers slowing food safety innovation have also been highlighted by larger packers as a concern with doing business in Canada. • Not enough mutual recognition of results coming out of other regions, especially key trade partners like the United States. 	
Labour Shortages	<ul style="list-style-type: none"> • Complexity of TFW program and cost of applications • Sourcing both trained meat cutters and general labour • Retaining new staff for longer than 2-3 days 	
SRM Regulations	<ul style="list-style-type: none"> • SRM disposal costs through renderer equivalent to \$300/bin. Considerable for small processors. • Disadvantage to larger packers who are paid by the renderer for by-product. 	

Barrier	Key Processor Barrier Within Category	Level
Capital Financing	<ul style="list-style-type: none"> Lending criteria adopted by national banks do not favourably view small processors with regarding to their management, security, and cash flow. Difficulty accessing loans for investments (e.g., added freezer capacity). 	
Extension Support	<ul style="list-style-type: none"> Extension support for small processors from government has declined. Extension support includes time assisting processors with certification, filling out applications and generally offering more of an educational and support role. 	
Communication	<ul style="list-style-type: none"> Processor participation in their provincial association declined through 2010s to the point where they effectively no longer have a collective voice. 	
Market Access	<ul style="list-style-type: none"> Limitations on interprovincial trade leads to inefficiencies for those operations wishing to build an integrated feeding/processing operation and export outside province. Processors want interprovincial trade. Declining marketing support from Alberta’s Business Development program, which previously offered more assistance to provincial processors in marketing. 	

Top-5 Barriers Identified

The Conclusion section outlines the top-5 barriers from this work.

- Labour Shortages** - barriers associated with labour shortages are the number one issue facing both the provincially and federally regulated processing industries in Alberta. At the federally regulated level there is a push to increase Cap rates and improve the pathway to Permanent Residency within the Temporary Foreign Worker (TFW) program to alleviate labour shortages. At the provincially regulated level the key challenge is sourcing and retaining skilled and unskilled domestic labour.
- SRM Regulations** - Packers operating in Alberta view Canada’s SRM regulations in terms of competitiveness relative to their U.S. operations. SRM carve-out requirements in Canada require more carcass by-product for over thirty-month (OTM) cattle be allocated to less profitable uses. For provincially regulated processors, SRM regulations mean small and medium-sized processors are charged more by the renderer in Alberta for by-product removal.
- Access to Capital** - Consultation with lenders reveals that small and medium sized processors do not fit their typical profile of an ideal borrower with regard to (1) management, (2) security, and (3) cash flow. Other jurisdictions approach this issue by offering government-back loan guarantees. Feedback from small and medium-sized processors suggests that they are seeking capital to expand freezer capacity and modernize some of their equipment.
- Pathways and Regulatory Compliance** - extension is defined as a service offering technical advice and the transfer of new ideas to support a given industry. Feedback from provincially regulated processors on their industry suggests that the food safety standards and processing standards can vary significantly from business to business. New entrants in particular may benefit from additional technical support in getting their facilities up and running. Support would also be beneficial in marketing meat products. There is an opportunity for government to support industry in these areas.

Recommendations

5. **Market Access** - A key barrier to growth for larger provincially regulated processors is market access. All of the larger provincially regulated processors pointed to their inability to trade interprovincially as a key barrier to their growth. Given the prioritization of this issue by federal provincial, and territorial (FPT) Ministers of Agriculture, there appears to be an opportunity at this time to push for interprovincial trade to the benefit of small and medium sized provincially regulated processors.

The Recommendations take into consideration the top 5 barriers identified in this report. The recommendations are addressed to the Government of Alberta as actionable steps that can be taken to overcome the key barriers facing processors (Table 2).

- **Recommendation 1: Address Immediate Labour Crisis**
- **Recommendation 2: Harmonize Processing Standards**
- **Recommendation 3: Increase Processor Support**

Table 2: Actionable Recommendations

Recommendation 1: Address Immediate Labour Crisis

- **Alberta Advantage Immigration Program - Re-evaluate Immigration Criteria:**
 - **Experience Over Education:** Consider adjusting mindset to view 2-years of work experience over the typical education criteria. As in other provinces, Alberta has prioritized education as their primary immigration criteria. Modelling the program off the Manitoba Provincial Nominee Program (MPNP) has been the feedback from federally regulated packers.
 - **Carve Out Positions:** AAIP can go further by establishing a set number of foreign worker positions specifically for processors. This approach would ensure that the processing industry has the labour it needs to continue to operate at full capacity. We recommend 500 positions be set aside for federally regulated packers in Alberta.
- **Government of Alberta - Create Career Trainee (Internship) Program:**
 - We recommend that an additional career trainee (internship) program be created that is specifically design for small and medium-sized processors. The program should have low baseline requirements such as having been in operation for over a year and demonstrated fiscal and organization need. The program would then fund a percentage of the intern’s salary (e.g., 70%) for a given time period (e.g., 7-12 months).
- **Government of Alberta - Review Financing Options for Provincial Processors:**
 - Small and medium-sized processors in Alberta are struggling to retain labour. Part of the underlying issue is aged facilities and the inability to access capital. For example, capital would allow smaller processors to upgrade equipment to create better working conditions for labour. We make two actionable recommendations to improve processor access to capital:

1. Agriculture Financial Services Corporation - Raise Awareness and Prioritize Processors

- There is an opportunity to use existing programming in Alberta by raising awareness amongst processors of AFSC's [Agribusiness Loans](#). Awareness should be raised through a marketing campaign to registered provincially regulated processors in combination with directives to AFSC to prioritize lending to this sector.

2. Government of Alberta - Consult Federal Counterparts Regarding CSBFP

- We recommend the Government of Alberta consult the federal government regarding how the Canadian Small Business Financing Program ([CSBFP](#)) could prioritize loan guarantees to small and medium-sized processors.

Recommendation 2: Harmonize Processing Standards**▪ Federal, Provincial and Territorial Governments - Harmonize Standards:**

- Interprovincial trade has been highlighted by the larger provincially regulate processors as a key to growth for their businesses. The key to interprovincial trade is through harmonization of standards. We recommend two steps be taken to harmonize standards:

1. First, we recommend that the Government of Alberta, in collaboration with the other provinces and territories and the federal government, continue to seek further harmony between federal and provincial processing standards, so as to reduce barriers to inter-provincial trade.
2. Second, we recommend that the Government of Alberta seek federal government financial support to develop programming to:
 - i. Assist provincially regulated processors with upgrading their facilities to comply with CFIA standards (i.e., acquire HACCP certification).
 - ii. Outline how CFIA may cover a percentage of inspection costs for Alberta Meat and Dairy Inspection for meat destined out of province.

Bringing larger provincially regulated processors up to the federal standard would allow them to export to other provinces. We suggest modelling the program on the Cooperative Interstate Shipping (CIS) Program in the United States.

Recommendation 3: Increase Processor Support**▪ Alberta Meat and Dairy Inspection - Create Defined Extension Support Roles:**

- We recommend that more extension-oriented roles be defined within Alberta Meat and Dairy Inspection. Small and medium-sized provincially regulated processors would benefit from additional extension support in the following areas:
 1. Navigating food health and safety standards (e.g., Safe Food for Canadian Regulations)
 2. Understanding appropriate SRM disposal techniques (e.g., large regional differences)
 3. Establishing new facilities (feedback suggests large difference between facilities)

▪ Business Development Unit & FPDC- Emphasis on Meat Processing Support:

- We recommend that the Business Development Unit and the Food Processing Development Centre (FPDC) prioritize traditional animal slaughter and meat processing in a similar manner to how new food trends like plant-based proteins have been prioritized in the last five years. We recommend

that two new positions be created as well as investments into FPDC focused on small and medium-sized processor technology.

– **New Business Development Unit positions:**

1. **Meat Marketing Support Role:** We recommend another Business Development position be created with a focus on assisting small and medium-sized provincially regulated processors with vendor engagement.
2. **Processor Start-Up Support Role:** We recommend a second position be created to assist newer small and medium-sized processors by providing guidance regarding navigating regulations not associated with food health and safety:
 - Regulatory overlap between provincial and municipal authorities.
 - Environmental regulations such as dealing with wastewater.
 - Navigating the various levels of tax requirements.
 - Hosting information outreach seminars through association.
 - Coordinating on-site (FPDC) visits for processors.
 - Accessing capital financing options

– **Government Investment in FPDC:**

3. We recommend that the Government of Alberta allocate additional funding towards initiatives within FPDC specifically focused on processing technology development that would benefit small and medium-sized processors. While specific technology development options need to be the part of additional research, we recommend an initial focus on:
 - **Kill and Chill Phase**
 - **Automatic Loading**
 - **Cattle Dehiding**

2.0 Introduction

2.1 Objective

The purpose of this work has been to identify barriers and opportunities to build competitiveness and resiliency into the processing sectors. The approach to generating further resiliency in the sector has been viewed through the lens of identifying the key barriers facing the processing industry and making actionable recommendations around how to remove those barriers.

2.2 Approach

Our research methods included a literature review, a jurisdictional scan, industry survey and stakeholder consultations. Consultations included over 60 stakeholders from provincially regulated processors, federally regulated packers, cattle producers, backgrounders and feeders, industry associations, research institutions, regulatory bodies, and other experts with key insights.

The consultation process adopted a semi-structured interview approach, where the interviewer asks open-ended questions instead of following a strict and formalized list of questions. Once certain themes began to emerge during the consultation process, our team lined up subsequent follow-up consultation with those we already contacted and with new stakeholders to focus on those specific topics. For example, within the topic of barriers for small processors we had to seek input from financial institutions regarding barriers in place for smaller processors to access credit. Through this approach, we continued conducting interviews until we no longer received new feedback from the consultation process (i.e., the process reached a saturation point).

The findings presented in the following report have been developed from (1) the literature review and jurisdictional scan, (2) the stakeholder consultation process, and (3) our own experience operating in the agri-food sector in Canada. The findings are not meant to single out any one sub-sector, regulatory body or group. Our intent is to provide an objective third-party overview of the barriers in place for this industry in Alberta and actionable recommendations based on those findings.

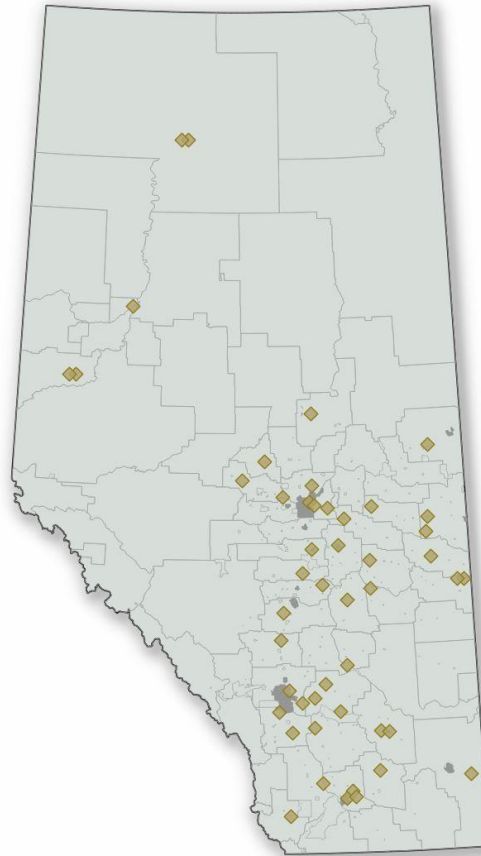
2.3 Background on Processing Industry

Provincially Regulated Processors

The red meat processing industry in Alberta is separated into provincially regulated processors and federally regulated packers.¹ According to the [Agricultural Processing Industry Directory](#) published by the Government of Alberta, there are roughly 50 provincial abattoirs who reportedly process bovine meat. Some of these smaller processors specialize in bovine, but many process wild meat, bison, hogs and poultry meat as well. Provincially regulated processors are concentrated in cattle production regions of the province (Figure 1).

¹ There are also provincially regulated food processors (e.g., sausage manufacturers), but at the provincially regulated level this work focused on those processors who also slaughter livestock and are regulated by Meat and Dairy Inspection Alberta.

Figure 1: Provincial Abattoirs - Alberta Map



Source: Produced using Government of Alberta location data.

Beef produced at provincially regulated processors cannot be exported outside the province. Most processors surveyed for this work ranged in size 6 to 20 head per week, with a few processing more than 20 head per week. Smaller processors typically rely on family labour with limited arms length labour while the larger provincial processors retain a staff of more than 15 people. The larger processors retain both “skilled” and “unskilled” workers. The unskilled labour category is often the most difficult for smaller processors to fill, with a turnover rate of 2-3 days.

Provincial processors tend to generate revenue through three different approaches. First, many new processors start out offering custom cutting and wrapping services as a way to get into the business because it does not require the same level of capital as purchasing livestock for processing. Cutting and wrapping services are typically done for cow-calf producers with farmgate sales. Second, processors try to transition into purchasing livestock and cutting and wrapping for sale to a third party (e.g., local retail outlet). Fat cattle are typically purchased through a feedlot for this purpose. The third approach is to purchase livestock to cut and wrap for sale through their own retail outlet (either on site or through remote sales). This is ultimately the point all processors want to reach as it generates the largest profit margin for their business.

Federally Regulated Packers

The federally regulated packing industry in Alberta is made up of six packers (Table 3). The majority of federally regulated beef processing in Alberta is completed by JBS Brooks and Cargill High River.

Table 3: Federally Regulated Packers - Alberta List

Location	Estimated Throughput
JBS Brooks	4,500 head/day
Cargill High River	4,700 head/day
Bouvry Exports Calgary Ltd.	160 head/day
Berretta Farms Ltd. (Canadian Premium Meats)	135 head/day
Harmony Beef Company Ltd.	600-700 head/day
Prairie Farm Foods Inc.	N/A
Total Estimated Capacity	10,000-10,200 head/day

Source: Publications and Serecon estimates.

Federally regulated packing plants are able to export to other provinces and internationally. They require inspection by the Canadian Food Inspection Agency (CFIA) and supply large domestic retail outlets in Canada including Overwaitea Foods Group, Loblaw Companies, Costco, and all the other major retailers. Supplying large retail outlets requires consistent supply and uniform product. The larger federal packers produce the volume necessary to service these markets.

Federal packers also vary significantly in not only their level of technology adoption but also in what level of processing they complete in-house. For example, the largest packer (Cargill High River) completes all stages from the “kill & chill” to processing and warehousing in preparation for export. The largest processor also renders its own by-products including Specified Risk Material (SRM). Some of the smaller packers on the list complete the earlier stages and then work with a third party to do some of their value-added processing (e.g., hamburger patty production). Most of the smaller and medium-sized federally regulated packers work with the provincial renderer to dispose of their by-product as well as handle all of their SRM waste.

3.0 Findings - Processor Barriers

3.1 Context

The following section identifies barriers for the provincially regulated and federally regulated processing sectors. It is our opinion that building competitiveness and resiliency into the processing sector can best be achieved through removal of barriers facing industry. This section identifies the top barriers.

The findings on barriers for processors of all sizes presents a summary of input provided by both provincially and federally regulated processors/packers and our supplementary input from the background research process. The following processors barriers have been identified:

Federally Regulated Packers

- Labour Shortages
- SRM Regulations
- Traceability Regulations
- Food Safety Innovation

Provincially Regulated Processors:

- Labour Shortages
- SRM Regulations
- Capital Financing
- Extension Support
- Communication
- Market Access

3.2 Processors Barriers

The barriers identified in the following section have been separated into federally regulated packers and provincially regulated processors. This separation has taken place because the barriers faced by the two levels of the processing industry are different.

3.2.1 Federally Regulated Packers

3.2.1.1 Labour Shortages

Labour barriers for the federally regulated packers are reported to be the:

- Complexity of the Temporary Foreign Worker (TFW) program
- Cap rates (10%-20%) on foreign labour remaining low
- Uncertain pathway to permanent residency (PR) for workers

Some of the labour-related barriers appear to have also heightened during the pandemic. For example, feedback from a labour expert pointed out how all the certifying bodies overseeing language testing halted operations during the pandemic, resulting in a severe backlog in applications. This backlog is reportedly working its way through the system but is expected to continue to have an impact for some time to come.

The bullet points identified above are well-documented through the Canadian Meat Council (CMC) and the issues are kept at the forefront of the dialogue with government through registered lobbyists and other representatives to speak on behalf of the packing industry. Recent changes like an increase on the Cap on foreign workers to 30% (for some processors) is a step in the right direction. Other barriers such as the increasing processing fees and paperwork required in completing a Labour Market Impact Assessment (LMIA)² and the uncertain pathway to permanent residency (PR) for foreign workers both remain barriers for packers.

While most of the barriers identified revolve around the federal TFW program, some highlighted areas where they believe the province of Alberta could re-evaluate immigration priorities in order to benefit the food processing industry. The opinion from industry is that the Alberta Advantage Immigration Program (AAIP), formerly the Alberta Immigrant Nominee Program, previously prioritized immigration that aligned more closely with the needs of industry. For example, much of the foreign labour in packing plants is currently being sourced from the Philippines. Much of this labour has completed up to Grade 10. The past immigrant nominee program in Alberta was pragmatic about accepting the education documentation of these workers, i.e., a Grade 10 certificate from a local village in the Philippines was accepted as a high school equivalent for the sake of the immigration process. Now, it appears that the province has started to mirror the express entry program at the federal level, resulting in tighter criteria and more red tape in accessing foreign labour.

To summarize, what industry is seeking is to have AAIP show independence from the federal program by adjusting their approach to this category of foreign labour. In other words, industry wants AAIP to adjust its perspective by valuing experience over education for this category of foreign worker and reduce some of the red tape around demonstrating education equivalency. An example provided is for a skilled "Industrial Butcher" seeking to come to Canada. Many of these butchers have been working for many years outside their hometown and tracking down their certification is often incredibly cumbersome. Industry is seeking for 2-years of experience to be viewed as acceptable without any further education criteria.

3.2.1.2 SRM Regulations

Regulations on handling Specified Risk Material (SRM) were one of the most raised barriers during the consultations with federally regulated packers as well as, to a lesser extent, the provincial processors.

SRM regulations are ranked as a second largest barrier by the federally regulated packers. Since regulations in Canada were changed by the Canadian Food Inspection Agency (CFIA) post bovine spongiform encephalopathy (BSE) outbreak in 2003, the processing industry in Canada has been pushing for alignment with the United States on how SRM is regulated. Recently, following the World Organization for Animal Health (OIE) changing Canada's risk status to "negligible" in 2021, there have been renewed calls from processors/packers to have SRM regulations aligned

² An LMIA application is \$1,000 and hiring a third party to complete the assessment is estimated at \$2,000. Larger packers handle these submission process on their own, but smaller federally regulated packers outsource this work at a cost of \$3,000 per LMIA application.

3.2.1.3 Traceability Regulations

with the United States. There is currently a risk assessment being completed by a third party to outline the potential risks associated with SRM regulatory change. The results of this risk assessment will feed into the decision-making process by CFIA.

Based on feedback from the consultation process, our understanding of the reluctance to change the SRM regulations comes down to (1) the question of whether or not the original “classical” case of BSE from 2003 has been eradicated, and (2) concern around other areas of Canada’s beef supply chain with regard to “catching” BSE prions.

The packing industry views the recent OIE status change as an opportunity for alignment with the U.S. on SRM regulations. Alignment would remove their second largest barrier behind labour. Stakeholders also point out that as more and more time continues to go by there must be a point after which it is determined by CFIA that the original “classical” case of BSE discovered in Canada is viewed as eradicated. Many believe the beef industry has reached that point and would like to see movement on this barrier.

As industry requires more and more traceability data, there is a push for new systems to be put in place to track cattle through the supply chain. All actors along the supply chain are going to bare some of the cost of traceability in the form of tracking devices (e.g., ear tags) or in administrative costs to keep track of the information.

CFIA is putting in place new traceability regulations that will track the movement of the animal at every step through the supply chain. Currently there is a “Bookend System” in place. This means livestock is tracked when it leaves origin (ranch) and when it is slaughtered (packer). Trading houses do not have to record when cattle go through their sale. The new traceability regulations would allow CFIA the trace every step along the supply chain, which is critical in the event of disease outbreak. The new regulations would require federally regulated packer to report ear tag numbers, RFID tag numbers, truck license plate number, date and time of arrival. Packers already report when the animal is slaughtered, but the new traceability regulations would add this additional information.

The barrier for packers is that a lot of plants would have a cost to record and report this information when it arrives at the plant. The packers view the upcoming requirement as disproportionate given that other intermediary segments of the supply chain are not being asked to record this information.

The packers are seeking a technology that would reduce their traceability costs by using Ultra-High Frequency (UHF) tags. At this time, their concern is that industry is pushing for adoption of Radio Frequency Identification Tags (RFID) tags, which only allow the packer to access the information within a certain radius of the animal.

While the new traceability regulations are not yet a barrier, packers are working with industry to try to seek a solution that will provide a grace period while newer UHF technology catches up so that this issue does not become a barrier to their operations.

3.2.1.4 Food Safety Innovation

Barriers slowing food safety innovation have also been highlighted by larger packers as a concern with doing business in Canada. In general, the different circumstances around zero risk/tolerance on food safety are found to be frustrating. The perspective is that there is not enough mutual recognition of results coming out of other regions, especially key trade partners like the United States.

A common example provided is new methods of testing for microbials for meat products. The viewpoint of the larger packers is that there are new methods for testing microbials available but no chance that CFIA will adopt them. One of the largest processors identified this as “the number one issue facing red meat processors”. They suggested that something “needs to be done to adjust mitigation chemistry so that they have a nimbler system here in Canada”.

This has been referred to by the packers as cultural issues at CFIA that impact multiple regulatory approaches and stymie innovation. Another example is water recycling technology. Water recycling is a critical component of a larger packing operation, and they are constantly seeking new water recycling systems to reduce their operating costs and improve their operations. There is a new system available that the larger packers are seeking to integrate into their operations but they have been waiting years for approval from CFIA on the technology.

The packer suggests that because Canada is a small player in the global market, there should have an aggressive approach to adopting foreign risk assessment reviews from other regions.

3.2.2 Provincially Regulated Processors

3.2.2.1 Labour Shortages

Provincially regulated processors rely much more on domestic workers in their operations. It is only the largest provincial processors who are starting to explore the TFW program, and their barriers will be much the same as those identified above for the federally regulated packers.

Provincial processors report various barriers around labour, including:

- Difficulty sourcing labour in their facilities,
- Problems retaining new staff for longer than a couple days,
- Competition from other sectors (e.g., Oil and Gas)

This barrier appears to have been heightened through the pandemic and as a result of government programs like the Canada Emergency Response Benefit (CERB), the rebound of the oil and gas sector in Alberta and recent housing price inflation (more motivation to seek higher paying work elsewhere).

Feedback from processors suggests that new hires only last a few days in the processing operation before leaving. The given reason for leaving is often a higher paying job or that the processing work is too labour intensive and difficult. Smaller processors often have less of the labour-saving equipment found in the larger facilities, and the work is very difficult.

Smaller processors also report frustration with the provincial meat cutting program. This appears to come down to a disconnect between what the processors are seeking and what the meat cutting program is producing. The processors are either seeking low-cost labour or a specific meat cutting skillset that is not being trained in a program that produces general meat cutting skills. The meat cutting program is seeking to produce skilled graduates that can either go on to open their own shop or take on a management role within an existing processing facility. Feedback from the meat cutting program suggests that graduates who have gone on to work in smaller processing facilities often leave due to working conditions, or they are unable to achieve a salary in line with their expectations.

All else being equal, smaller processors appear to require support accessing labour, retaining it long term, and paying a sufficient salary. On the other hand, feedback from the meat cutting program suggests that the processors also have a role to play in creating working conditions that are attractive to retaining labour. Feedback suggests that facilities are often dated and there is work to be done improving working conditions so that workers want to remain in the role.

3.2.2.2 SRM Regulations

Not all provincially regulated processors viewed SRM regulations as a barrier. Many appear to have worked it into their operating costs over the past 15 years and now view it as a part of doing business. However, the SRM-related barrier for smaller processors is that it adds to their operating costs and reduces their profit margin.

Prior to SRM regulatory change by CFIA in 2007, the provincial renderer collected by-product material from smaller processors without charging for collection. The renderer was collecting this material and rendering it in their facility at no cost to the processor. Our assumption is that the renderer was able to cover collection (transportation) costs with the profit generated by the by-product material. Once CFIA changed SRM regulations so that SRM by-product had to be rendered in a segregated facility, the renderer built a new facility and began charging smaller processors for all by-product pickup (both SRM and non-SRM by-product).

The renderer provides provincially inspected processors separate bins for disposal of non-SRM and SRM by-product. The renderer picks up the two different types of by-product on separate days. Consultation with processors suggest that they can fit the by-product material from 6 Under Thirty Month (UTM) carcasses in the "regular" by-product bin and are charged between \$80-\$100 per bin for pickup (roughly \$15 per head). For SRM, processors are charged approximately \$300 per bin for pickup.

Smaller provincially regulated processors point out how the larger packers are able to generate profit from the sale of by-product material to the renderer. Larger operations are able to put together larger shipments of by-product material and work out deals with the renderer for payment of this product. There are economies of scale in place that allow larger processors to generate revenue on the sale of by-product while smaller processors are charged for removal.

3.2.2.3 Capital Financing

Consultation with provincially regulated processors suggests that there is interest in expanding their operations by adding additional freezer capacity or by purchasing

modern equipment to either add more value-added processing capacity or reduce some need for labour. Small and medium sized processors report access to financing as a key barrier to expansion.

Regarding capital financing, capital loans are reportedly difficult to source through national banks. Processors complain how the banks “do not understand agriculture” and they often “get cold feet and pull back too easily” when it comes to financing their industry. Consultation with lenders reveals that small and medium sized processors do not fit their typical profile of an ideal borrower. They assess a small or medium sized processor on three criteria: (1) management, (2) security, and (3) cash flow.

First, lenders look at how long a processor has been in business, and they try to assess a potential borrower's management abilities when it comes to running their business. A small processor would improve their chances of accessing a loan with a well-developed business plan and a good track record of solid management decisions. However, putting together this paperwork for a loan application is often not done by smaller processors.

Second, lenders will also consider common forms of security. Preferably real estate. The issue is that small and medium-sized processors either lease the land where the processing operation is located (unable to use leased land as a form of security), or the buildings are owned but often have little remaining equity. Buildings tend to be older and fully depreciated.

Lenders report that the concern with weak collateral would not be as much of an issue if the asset could be repossessed through a General Securities Agreement (GSA), whereby the asset can be repossessed by the lender. A built-in freezer is not easily repossessed by the lender as it becomes part of the building and loses its value for resale.

Third, lenders look at a processor's cash flow. The tendency for red meat processing and cash flow to fluctuate with the cattle cycle does not help. Small and medium sized processors often require a line of credit to manage cash flow, and this does not look strong on a loan application.

Small processors report better success acquiring capital loans through institutions like Farm Credit Canada (FCC). For larger processors FCC is reportedly a good option when it comes to sourcing capital financing, but not working capital. FCC does not provide working capital.

The Agriculture Financial Services Corporation (AFSC) in Alberta is another option, but few processors are aware they act as a lender as well as insurer. Through their lending programs, AFSC provides loans to cover land and equipment purchases as well as working capital. Small and medium sized processors fall under their lending umbrella, even though few know about it or submit applications.

While AFSC has suitable loans for small processors as a part of their lending programs, there may be an underlying aversion to the processing industry resulting from past experience. There was a push in the early 2000s to support increased

slaughter capacity in the province (following BSE) and AFSC came up with new programming. The programming tried to foster investment into processing. The two key programs were the Beef Product and Market Development Loan Program and Project Investor Financing (PIF) Loan Program. The programs were designed to enable AFSC to become involved in a few larger projects, with the understanding that it would result in AFSC exceeding their rural investment targets, i.e., it was viewed as disaster relief.³

With this experience in mind, we view it as unlikely that AFSC (with government direction) would create any specific programming viewed as “disaster relief” for the processing sector without a significant change in policy direction. They offer programs already that are suitable for smaller processors, but new programming would have to result from a top-down decision from the government of Alberta.

Other jurisdictions are attempting to overcome the difficulties faced by smaller processors accessing capital loans by offering government-backed loan guarantees. For example, the United States has set aside \$21.9 million in grant funding to support meat and poultry supply chains. Specifically, the Food Supply Chain (FSC) Guaranteed Loan program and the Meat and Poultry Intermediary Lending Program (MPILP) have been developed to strengthen the financing systems for independent processors. The former provides loan guarantees to banks willing to lend to smaller processors.

In Canada, the closest comparable program would be the federal Canadian Small Business Financing Program (CSBFP). This program in Canada fills a similar role to the guaranteed loan program currently offered in the United States by making it easier for small businesses to get loans from financial institutions by sharing the risk with lenders. However, the major difference is that this Canadian program is not specific to meat processing. Small and medium sized processors in Alberta would be competing with all other small businesses across Canada through the CSBFP.

3.2.2.4 Extension Support

While support can be defined many different ways, in this section we refer specifically to extension services offering technical advice and support to provincially regulated processors. This support is found in two distinct areas:

1. Food Health and Safety Regulations
2. Engagement with Venders (B2B Support)

First, the stakeholder consultation process suggests that small and medium-sized processors would benefit from additional support adhering to food health and safety regulations. Alberta Meat and Dairy Inspection oversees all meat inspection and slaughter licensing in the province. While the mandate of the department may never have been to offer extension support to small and medium sized provincial processors, in the past they had a larger staff and budget and were able to take more time to offer extension-like support. This extensions support would have included time in assisting processors with understanding Hazard Analysis Critical Control Point (HACCP) certification, filling out complex food safety applications and

³ Agriculture, Food and Rural Development. Business Plan 2006-09. Government of Alberta ([link](#)).

generally offering more of an educational and support role. While it may never have been their responsibility to offer this additional support, the loss of this (call it “in-kind”) service leaves processors with a gap in support that has not been filled by another entity, such as a provincial association.

Provincially inspected processors admit that there is a gap in educational support for smaller meat processors in the province. They observe that some of the newer entrants to the industry may not have the support they need to meet modern food health and safety standards in their facilities. Some of this gap in educational support could be offered through Alberta Food Processors Association (AFPA), but they are also a smaller organization with limited budget and little participation from small and medium-sized processors. AFPA does not have the resources or the incentive from membership to develop these sort of education support programs.

Second, support with marketing has also been requested by provincially regulated processors. Feedback from provincially inspected processors suggests that they would also benefit from increased marketing support. The larger provincially regulated processors point to programs in other provinces that they feel help their counterparts in those provinces market product to retail, which is something they struggle to do in Alberta.

Larger provincially regulated processors in Alberta who attend national meetings and have had the opportunity to connect with their counterparts in Ontario describe the Vender Engagement (VE) program available through the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). The OMAFRA program is run by limited staff members who have experience in marketing meat and in facilitating the key business to business (B2B) relationships between their provincially regulated meat industry and retailers (e.g., Farm Boy) who are looking to capitalize on the local food movement. Feedback suggests that this program benefits processors in Ontario because the VE Program helps them market there “less desirable product”.

It is our understanding that the Business Development program in Alberta formerly employed staff who took on a similar role to what we have described in the VE program at OMAFRA. With staff reductions over time, and decisions about where resources should be focused, the Alberta program has a strong emphasis on initiatives housed in the Leduc Food Processing Development Centre (FPDC). FPDC plays a key role in fostering growth and commercialization of food, beverage and ingredient manufacturing companies, and is helping to ensure that Alberta attracts food manufacturers and stays at the forefront of new food trends. However, there is little participation from traditional meat processors, meaning that they are benefitting little from the current structure of the Business Development program in Alberta. Processors are requesting a position be filled in the Business Development program that provides marketing support in a similar manner to the VE program.

3.2.2.5 Communication

Communication refers to the ability of the regulatory body and the processors to come together and exchange ideas effectively, discuss issues that are arising within the industry, and perform effective consultation processes prior to policy change. It also refers to the ability of industry to come together and collectively lobby for change. This ability is not present for processors in Alberta.

Feedback from the provincially regulated processors suggests that they have been growing increasingly frustrated at their belief that government will make changes to how they are regulated without any consultation process. This feeling has grown during the pandemic, when industry days and other opportunities to gather with government were put on pause. There is frustration at the belief that their voices are not being heard by their regulators.⁴

Part of the decline in communication can be explained by the pandemic and it is likely a temporary issue. The secondary explanation is that processor participation in their provincial association has declined to the point where they effectively no longer have a collective voice. In the past, Alberta had a meat processors association that represented meat processors exclusively. In 2005 the meat processors association amalgamated with the AFPA. In the mid-2000s following the merger with AFPA, the meat processors had active participation from respected representatives from their industry like Russ Paul and Brad McLeod. Russ Paul was the “legs on the ground” of the organization and with his passing in 2011 there was a significant gap in leadership on the meat processing side of AFPA. There now appears to be minimal interest amongst meat processors in Alberta in participating in AFPA.

AFPA is primarily a membership-fees driven organization, like most industry associations. Without participation from provincial associations and their membership fees, AFPA is unable to provide association content or representation for this sector. This issue will need to be overcome if association representation for smaller processors is to be renewed, and communication between parties restored.

3.2.2.6 Market Access

Feedback on market access focused on interprovincial trade and a request for increased marketing support. Processors suggest that both of these initiatives would help them grow their businesses.

The larger provincially regulated processors are keen to export to other provinces. This is also applicable to some of the larger cattle producers who are seeking to develop an integrated feeding/processing operation. Consultation with one of these operations presented a scenario whereby they send fat cattle to Westwold, British Columbia, to be processed at the federally regulated KML Beef plant in the interior so that they can export meat to a retailer in neighbouring Saskatchewan. This requires transporting the livestock 900 kms and then bringing the processed meat back across Alberta to a retailer in Saskatchewan. The ability to trade interprovincially would allow some of these larger provincially regulated processors to build their processing businesses and capitalize on the “buy local” trend growing amongst consumers, without having to go through the federally regulated operations.

In 2011, the Government of Canada put \$3 million towards an interprovincial trade pilot project overseen by CFIA. The pilot followed the USDA establishing their

⁴This work focused on those provincially regulated processors who also have abattoirs, which falls under the authority of Meat and Dairy Inspection Alberta.

3.3 Summary

[Cooperative Interstate Shipment](#) (CIS) program around the same time.⁵ Through the CIS program, selected state-inspected establishments in the United States that comply with federal inspection requirements are permitted to ship meat and poultry products in interstate commerce. To be eligible to participate in the CIS program, state Meat and Poultry Inspection (MPI) programs must meet a number of criteria to demonstrate that the inspection that it provides to state-inspected plants will be the “same as” the inspection that Food Safety and Inspection Service (FSIS) provides to official federal establishments.

In April 2022, CFIA developed a Ministerial Exemption (ME) process to permit interprovincial movement of food through establishments that are not federally licensed if such trade becomes necessary to alleviate food shortages. In July 2022, the federal, provincial, and territorial (FPT) Ministers of Agriculture reached an agreement to pursue inter-provincial trade through four pilot projects focused on increasing domestic trade in meat. These initiatives all point to the need to harmonize standards to allow for interprovincial trade.

This findings section is informed by a combination of the survey, the stakeholder consultation process, and the takeaways from the literature review and jurisdictional scan work.

Barriers facing the federally regulated processing industry include labor shortages, SRM regulations, traceability regulations and food safety innovation. Labour is the largest barrier followed by SRM regulations. Increased costs around traceability are something the packers see coming in the near future and they are working on new technology that will reduce their costs. Food safety innovation is something the packers view as a larger issue facing the food processing industry. There are new approaches (e.g., microbial testing) available that they view as sufficient and would like to see adopted by the CFIA.

The remaining barriers identified in this section are focused on the provincially regulated processing sector. The themes developed are ones of reduced communication between industry and the regulatory body, and departmental cut-backs over time leading to reduced extension support and marketing support by government. At the same time, processors have taken a less active role in their provincial association, meaning there is no entity to fill the communication gap. With the loss of key individuals from the processing industry taking an active role in AFPA in the early 2010s, there is now very little representation in the association by industry. Finally, the issues around accessing capital as a smaller processor are holding back the provincially regulated industry from expansion. Interventions may be required to overcome the identified barriers to accessing capital.

⁵Under CIS, state-inspected plants can operate as federally-inspected facilities, under specific conditions, and ship their product in interstate commerce and may have the opportunity to export them to foreign countries, provided the CIS participating State has entered into a supplemental agreement that addresses the export of CIS inspected products. No states currently have a supplemental agreement for exporting product internationally. There are currently 10 states participating in the program, with Montana being the latest to join in 2022.

4.0 Conclusions

4.1 Overview

The purpose of this work has been to identify barriers and opportunities to build competitiveness and resiliency into the processing sector in Alberta. We have approached the work through a combination of research methods including a literature review, a jurisdictional scan, industry survey and stakeholder consultations. Consultations included provincially regulated processors, federally regulated packers, cattle producers, backgrounders and feeders, industry associations, research institutions, regulatory bodies, and other experts with key insights. Over 60 stakeholder consultations took place for this work.

This section outlines the top barriers from this work and the following Recommendations section provides our opinion regarding actionable steps that can be taken by the Government of Alberta to reduce these barriers and ultimately lead to a more resilient beef processing industry going forward.

4.2 Top 5 Barriers

Top 5 barriers identified throughout this report:

1. Labour Shortages
2. SRM Regulations
3. Access to Capital
4. Pathfinding & Regulatory Compliance
5. Market Access

4.2.1 Labour Shortages

Labour is consistently ranked as the top barrier facing industry. Shortages in the meat processing sector has been a growing concern for years, but it appears to have increased during the pandemic and continues to effect both federally and provincially regulated processors.

The consultation process revealed some temporary issues during the pandemic that made the situation worse. For example, in Alberta there was a ban on TFW in the position of "retail butcher". The federally regulated packing industry hires general labourers, industrial butchers and retail butchers. The larger packers require retail butchers as they are completing value-added processing in-house. The ban on retail butchers was put in place to protect domestic workers in Alberta during the pandemic, and it increased the labour shortage for packers. Another example of a pandemic-related issue is the closure of agencies approved by Immigration, Refugee and Citizenship Canada (IRCC) to conduct language testing. Due to Covid-related issues, many of these testing facilities closed during the pandemic and it generated a large backlog in applications and reduced access to foreign labour for processors.

General concerns with the TFW program focus more on the increasing cost of the program, limited Cap rates on foreign labour, and the uncertain pathway to Permanent Residency (PR). While no packer during the consultation process was able to confirm the program cost increase, stakeholders indicate that the

[significant reforms](#) that took place in the program in 2014 drove up the cost of bringing in foreign labour. The LMIA component of an application, the component required to prove need for a foreign worker, increased to \$1,000 per application. The Cap rate on foreign labour is another identified barrier. During the pandemic, temporary measures were put in place such as the Cap rate being increased from 10-20% to 30% for some packers. This helps, but not all packers were given the increase to 30%. Finally, the pathway to Permanent Residency is uncertain. Packers are seeking amendments to the program to ease the transition into PR status for the workers they are bringing in and training in their facilities.

Larger provincially regulated processors are starting to consider using the TFW program, but the cost appears prohibitive. Hiring out the application submission process to a third-party costs in the range of \$2,000-\$3,000 per application. The general rule of thumb is that each foreign worker costs around \$5,000 to get to Canada and working in the facility after application fees and transportation are considered. The costs associated with the program make it out of reach for most smaller processors in Alberta.

The majority of small and medium sized processors rely on domestic labour, and their labour-related concerns are primarily focused on finding any labour willing to take on the job. Processors report turnover time of under a week for new hires and often no more than 2 days. Workers leave because the job is too difficult, or they find a hire paying job in a different industry. Smaller processors also report giving up on looking to hire trained meat cutters. They have decided that it is more cost effective to hire unskilled workers and train them on the job, due to their minimal success in hiring from the provincial meat cutting program. Consultation with the meat cutting program in Alberta and the processors suggests there is a disconnect between the skills sought by provincial processors and those being taught in provincial training programs. One explanation from a small processor is that the provincial training program produces general meat cutting skills while most small processors cater to a specific market and are required to train specific skills. From their perspective, it makes more sense to train on the job. Consultation with the meat cutting program suggests that their students often find the working conditions in small plants below the standards of what they expected.

4.2.2 SRM Regulations

SRM regulations is the second key barrier identified by the federally regulated packing industry. The largest federally regulated packers operating in Alberta view Canada's SRM regulations in terms of competitiveness relative to their U.S. operations. The largest packers are international businesses with the bulk of their North American operations in the United States. They are constantly reviewing their operations on both sides of the border and comparing profitability. Their argument is that the SRM carve-out requirements in Canada (more stringent than in the United States) mean more of the carcass by-product for over thirty-month (OTM) cattle is being used to create other products (e.g., fertilizer) rather than generating a higher return as by-product into the rendering industry for animal feed. Movement on this issue is critical for packers.

While the larger packers in Alberta view Canada's SRM regulations in terms of lost revenue potential, smaller provincially regulated processors view them as an

additional operating costs. Smaller processors have various options for disposal of by-product and SRM, but most processors work with renderers in Alberta to have their by-product picked up on a regular basis. Prior to 2009, all by-product was collected by the renderer from smaller processors free of charge. After 2009 the renderer began charging smaller processors for collection on the grounds that they had to pay for a new segregated SRM processing facility following the regulatory change. SRM regulations are costing small and medium-sized processors in higher disposal costs relative to regular by-product material and in additional management requirements (i.e., material must be segregated, and strict health and safety guidelines followed).

4.2.3 Access to Capital

Regarding capital financing, capital loans are reportedly difficult to source through national banks. Processors complain how the banks “do not understand agriculture” and they often “get cold feet and pull back too easily” when it comes to financing their industry. Consultation with lenders reveals that small and medium sized processors do not fit their typical profile of an ideal borrower. They assess a small or medium sized processor on three criteria: (1) management, (2) security, and (3) cash flow.

AFSC already provides loans to cover land and equipment purchases as well as working capital, and small and medium sized processors fall under their lending umbrella. However, AFSC is also required to make sound lending decisions and they are going to view small and medium-sized processors through a similar lens as the national banks in Canada. Government interventions are typically required to overcome the lending profile of smaller processors.

In the United States they are attempting to overcome the difficulties faced by smaller processors accessing capital loans by offering government-backed loan guarantees for banks willing to lend to small processors. In Canada, the closest comparable program would be the federal Canadian Small Business Financing Program ([CSBFP](#)). This program in Canada fills a similar role to the guaranteed loan program currently offered in the United States by making it easier for small businesses to get loans from financial institutions by sharing the risk with lenders. However, the major difference is that this Canadian program is not specific to meat processing.

Feedback from provincially regulated processors suggest that if they are able to overcome labour shortages and access capital loans for expansion, many would be in a position to grow their businesses. The number one investment small and medium-sized processors would make is to expand their freezer capacity.

4.2.4 Pathfinding & Regulatory Compliance

The consultation process revealed a provincially regulated processing industry that would benefit from additional support with pathfinding and regulatory compliance. Technical advice to assist with navigating complex regulatory hurdles around food health and safety and other matters would be beneficial.

Feedback from small and medium-sized processors in Alberta suggests that they would benefit from support adhering to modern food, health, and safety standards.

The regulations have become increasingly complex at the same time as government appears to have stepped back from a role of outreach and extension. An example of where this support would be valuable is in assisting processors with understanding Hazard Analysis Critical Control Point (HACCP) certification. Feedback from the regulator suggests that there is programming available through CAP to provide fund matching support to upgrade facilities, but the reality is that very few provincial processors submitted applications. The impression is that many were not aware of the funding or viewed the application process as prohibitively complex. HACCP certification is a critical component required to access many retail outlets and it is an area where extension support could be beneficial. The regulatory body, Alberta Meat and Dairy Inspection, is the natural choice to assist producers in this capacity. However, there does not appear to be the additional resources within the regulatory body to support these outreach and extension activities.

Small and medium-sized processors would also benefit from additional support marketing products. Feedback from stakeholders suggests that the Business Development Program within AAFRD formerly had staff with a role that offered assistance facilitating B2B relationships between vendors and provincial processors. While this may not have been the formal job description, there were individuals within the department that had this skillset and offered valuable assistance to processors in Alberta. Feedback from processors suggests that they would benefit greatly from renewed support within the Business Development program offering this level of support. They point to the Vendor Engagement (VE) program still housed within OMAFRA as a key example of that they seek.

Finally, this work revealed a provincially regulated processing industry that is no longer participating in their provincial association, and as a result, has lost its collective ability to lobby for change on key issues. The struggle with participation from small and medium-sized processors is that they only appear to come together when there is a key issue to focus on as this has been the case in the past. At least some intervention is required to restart processor participation in an association that will give the industry a platform for communication with the regulatory body.

4.2.5 Market Access

A key barrier to growth for larger provincially regulated processors is market access. All of the larger provincially regulated processors pointed to their inability to trade interprovincially as a key barrier to their growth.

Solutions need to be found to standardize trade regulations across provinces. In their response to the first report of the Standing Committee on Agriculture and Agri-Food, entitled: *Room to Grow: Strengthening Food Processing Capacity in Canada for Food Security and Exports*, the Standing Committee on Agriculture and Agri-Food (the Committee) recommends that the Government of Canada seek further harmony between standards to reduce barriers to inter-provincial trade. In November 2021, the federal provincial, and territorial (FPT) Ministers of Agriculture agreed that finding interprovincial trade solutions should be priorities under Sustainable Canadian Agricultural Partnership (SCAP) Framework ([Government of Canada](#)). The Ministers refer to their hopes around the ongoing interprovincial trade pilot project.

Larger provincial processors who are looking to start exporting to other provinces are going to great lengths to receive federal inspection approval. One of the largest processors is a fully integrated operation (production, feeding and processing) that is sending beef to BC's interior to be processed at Westwold and then exporting it to retailers in Saskatchewan. This adds considerable transportation costs to their product. With access to interprovincial trade, the largest 3-4 provincially regulated processors would be in a position to grow their operations and benefit from the increased market size.

5.0 Recommendations

The Recommendations take into consideration the top 5 barriers identified in the Conclusions section and provides a clear, actionable recommendations.

- **Recommendation 1: Address Immediate Labour Crisis**
- **Recommendation 2: Harmonize Processing Standards**
- **Recommendation 3: Increase Processor Support**

5.1 Recommendation 1: Address Immediate Labour Crisis

Alberta Advantage Immigration Program - Re-evaluate Immigration Criteria

There is an opportunity at this time for the Government of Alberta to adopt a more layered view on immigration criteria. Feedback from industry suggested that the following action from AAIP would have the greatest impact on their ability to access labour:

1. **Experience Over Education:** Start valuing 2-years of work experience over the typical education criteria. There is currently a Agri-Food Immigration Pilot that is testing a pathway to permanent residency for experienced, non-seasonal workers in specific industries, like meat processing. The pilot will conclude in May 2023. This pilot may improve some of the issues around retaining foreign workers (i.e., smooth the pathway to permanent residency), but the province of Alberta has the final say on which benchmark criteria, education or experience, will be the key decision factor. As in other provinces, Alberta has prioritized education as their primary immigration criteria. AAIP has an opportunity to set its own path by necessarily following the lead of IRCC and choosing to adopt policy changes that will have a positive impact on the food processing industry in the province.
2. **Carve Out Positions:** AAIP can go further by establishing a set number of foreign worker positions specifically for processors. This approach would ensure that the processing industry has the labour it needs to continue to operate at full capacity. We recommend 500 positions be set aside for federally regulated packers in Alberta.

As a general comment, the processing industry points to the Manitoba Provincial Nominee Program (MPNP) as the “Gold Standard” of provincial nominee programs. Further investigation into why the Manitoba program is specifically working effectively for industry should be conducted.

Government of Alberta - Create Career Trainee (Internship) Program

The Government of Alberta has various existing [internship and student employment programs](#) including indigenous intern programs, articling programs, municipal internship programs, and various others. There are currently seven programs available in the province. We recommend that an additional career trainee (internship) program be created that is specifically design for the food processing industry.

An example program in another province is the [Food Producer and Processor Career Internship Program](#) offered by the Columbia Basin Trust in British Columbia. The key point on this program is that it is eligible for all food processors who have been in operation a minimum of one year and that have a demonstrated fiscal and organizational need for an intern and wage funding. It does not require that the intern be a student. This type of career internship program would provide small and medium sized processors a percentage of the intern's salary (up to a given limit) for a 7–12-month term for a full-time, career focused position that leads to permanent employment.

In our opinion, this is the sort of support program that would have an immediate beneficial impact on small and medium-sized processors. While it may not solve the difficulty with finding labour, it would enable processors to afford to pay a wage rate that may retain workers.

Government of Alberta - Review Financing Options for Provincial Processors:

Small and medium-sized processors in Alberta are struggling to retain labour. Part of the underlying issue is aged facilities and the inability to access capital. For example, capital would allow smaller processors to upgrade equipment to create better working conditions for labour. We make two actionable recommendations to improve processor access to capital:

1. Agriculture Financial Services Corporation - Raise Awareness and Prioritize Processors

- There is an opportunity to use existing programming in Alberta by raising awareness amongst processors of AFSC's [Agribusiness Loans](#). Awareness should be raised through a marketing campaign to registered provincially regulated processors in combination with directives from the Government of Alberta to AFSC to prioritize lending to this sector.

2. Government of Alberta - Consult Federal Counterparts Regarding CSBFP

- We recommend the Government of Alberta consult the federal government regarding how the Canadian Small Business Financing Program ([CSBFP](#)) could prioritize loan guarantees to small and medium-sized processors. The CSBFP has a similar loan guarantee mechanism to the recently announced United States programming targeted at guaranteeing loans for meat processing (e.g., the Meat and Poultry Intermediary Lending Program), except it is not processor specific.

5.2 Recommendation 2: Harmonize Processing Standards

Federal, Provincial and Territorial Governments - Harmonize Standards

Interprovincial trade has been highlighted by the larger provincially regulate processors as a key to growth for their businesses. Whether they are located near a provincial border and want to access markets in their area across the border, or they are a larger processors looking to export further away, interprovincial trade

would open up the domestic market opportunities for larger provincial processors. The key to interprovincial trade is through harmonization of standards.

First, we recommend that the Government of Alberta, in collaboration with the other provinces and territories and the federal government, seek further harmony between federal and provincial processing standards, so as to reduce barriers to inter-provincial trade. In late 2021, the Federal, Provincial and Territorial Ministers of Agriculture agreed that market diversification and interprovincial trade solutions should be priorities under the Next Policy Framework. Continued emphasis by the Government of Alberta through their participation in the *Interprovincial Committee Related to Trade* is of continued importance in pushing this initiative forward.

Second, we recommend that the Government of Alberta seek federal government financial support to develop programming to:

- Assist provincially regulated processors with upgrading their facilities to comply with CFIA standards (i.e., acquire HACCP certification).
- Outline how CFIA may cover a percentage of inspection costs for Alberta Meat and Dairy Inspection for meat destined out of province.

Bringing larger provincially regulated processors up to the federal standard would allow them to export to other provinces. The United States has been working on supporting state inspected processors in accessing national markets through their Cooperative Interstate Shipping (CIS) Program (Table 4).

Table 4: Cooperative Interstate Shipping (CIS) Program - Example Program

Through the CIS program, selected state-inspected establishments in the United States that comply with federal inspection requirements are permitted to ship meat and poultry products in interstate commerce. To be eligible to participate in the CIS program, state Meat and Poultry Inspection (MPI) programs must meet a number of criteria to demonstrate that the inspection that it provides to state-inspected plants will be the “same as” the inspection that Food Safety and Inspection Service (FSIS) provides to official federal establishments. FSIS reimburses individual states for 60% of their costs associated with providing this interstate eligible inspection service.

We recognize that similar programming was attempted through Growing Forward 1 (GF1) and Growing Forward 2 (GF2) to support processors in upgrading facilities. However, feedback suggests that more awareness of the opportunity should be generated amongst processors as well as additional support in submitting applications. Consultation with Alberta Meat and Dairy Inspection regarding their insight around how to increase participation in future program is recommended to ensure uptake.

5.3 Recommendation 3:
 Increase Processors
 Support

We make two overarching recommendations around increasing processor support in Alberta:

- | |
|---|
| 1. Create extension support roles in Alberta Meat and Dairy Inspection |
| 2. Emphasize meat processing in Business Development Unit and FPDC activities |

Alberta Meat and Dairy Inspection - Create Defined Extension Support Roles

Feedback from the regulatory body suggests that there has been hiring in the last year in response to some of the issues identified throughout this report. Our understanding is that the new positions are meant to address some of the communication breakdown with industry.

While this step may solve some of the areas identified in this work, we recommend that more extension-oriented roles be defined within Alberta Meat and Dairy Inspection. Small and medium-sized provincially regulated processors would benefit from additional extension support in the following areas:

- Navigating complex food health and safety standards
- Understanding appropriate SRM disposal techniques
- Establishing new facilities that meet modern safety standards

As the regulator overseeing industry, Alberta Meat and Dairy Inspection is going to be best positioned to provide this valuable extension support.

Business Development Unit & FPDC- Emphasis on Meat Processing Support

We recommend that the [Business Development](#) Unit and the Food Processing Development Centre (FPDC) prioritize traditional animal slaughter and meat processing in a similar manner to how new food trends like plant-based proteins have been prioritized in the last five years.

Large government investments⁶ into FPDC are going towards the installation of equipment specifically focused on supporting companies to develop new plant-based foods and products, and much of the centre is staffed by food scientists, engineers and technologists looking to support this forward-looking food development mindset. Given the importance of the cattle industry in the province of Alberta, there needs to be more emphasis on supporting meat processing.

First, we recommend that two new Business Development positions be created with a focus on:

1. **Meat Marketing Support Role:** We recommend another Business Development position be created with a focus on assisting small and medium-sized provincially regulated processors with vender engagement. We recommend that the Vender Engagement (VE) program at OMAFRA be used as a template for the new position. Our understanding is that the Business Development Unit formerly had a position adopting a similar role. Smaller processors would benefit from one being re-established.

⁶ An example being the federal government investment of \$2.6 million in 2020 ([Alberta Seed Guide, 2020](#)).

2. **Processor Start-Up Support Role:** We recommend a second position be created to assist newer small and medium-sized processors by providing guidance regarding navigating regulations not associated with food health and safety. Food health and safety would be under the purview of the recommended new position(s) to be created within Alberta Meat and Dairy Inspection. This recommended new position would assist with other start-up business related challenges such as:
 - a. Regulatory overlap between provincial and municipal authorities.
 - b. Environmental regulations such as dealing with wastewater.
 - c. Navigating the various levels of tax requirements.
 - d. Accessing capital financing (e.g., leverage CSBFP and AFSC).
 - e. Hosting information outreach seminars through association.
 - f. Coordinating on-site (FPDC) visits for processors.

While there may be an opportunity to leverage existing staff to take on these two additional roles, running a slaughter facility and marketing meat products is completely different than many other forms of food manufacturing. Meat processing is subtractive manufacturing (removes material to create parts), whereas food product development is often additive manufacturing (build food products by adding ingredients). We recommend that new staff be hired to ensure that these activities do not get tagged onto existing staffs' workload at the risk of becoming a "corner of the desk" priority.

Second, we recommend that the Government of Alberta allocate additional funding towards initiatives within FPDC specifically focused on processing technology development that would benefit small and medium-sized processors. While specific technology development options need to be a part of additional research, we recommend an initial focus on:

- **"Kill and Chill Phase"** - While the larger federally regulated packing plant operations are looking to implement automation processing technology in the next 5-10 years that will allow them to process sub-primal cuts, the low-hanging fruit for smaller processors will be implementing technology that reduces labour requirements during the initial slaughter and chilling phases. Some options include:
- **Automatic Loading** - options should be reviewed for smaller systems to move animals into the designated area for stunning. This is happening for hogs.
- **Cattle Dehiding** - This is a labour-intensive element of processing and one that could be explored on a smaller scale.

Announcing the allocation of funds towards meat processing technology at FPDC would have two positive impacts for small and medium sized processors:

1. It would provide a location where they could view new technology for their industry and begin to determine the feasibility of implementing it into their own operations. They would also be able to provide feedback and take part in the conversation around what technology they are seeking.

2. It would be a signal to small and medium sized processors that they have not been left behind in the pursuit of new food trends such as plant-based protein food and beverage products.

We recommend these two actionable recommendations as key steps to re-establishing strong support for provincially regulated processors in Alberta.

FEASIBILITY ASSESSMENT OF CANADIAN WHOLESALE BEEF MARKET REPORTING

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EXECUTIVE SUMMARY

Canadian boxed beef reporting was discontinued in March 2020. Canfax sustained voluntary reporting with packer support for over 15 years. Confidentiality concerns, which persisted for years, and COVID-19 related disruptions were preclusions identified by Canadian beef packers which ultimately led them to cease the reporting of beef trade. Even before the reporting series was suspended in March 2020, multiple wholesale beef products frequently did not have a published weekly price quote available, and when price quotes were released, a low percentage volume of trade was represented. The main purpose of this research report was to outline options for consideration and suggestions that may help restore and improve Canadian wholesale beef market reporting.

Overall, this study concludes that multiple adjustments to the Canadian wholesale beef market information reporting system are worthy of consideration. Assessing the economic tradeoffs of moving from a voluntary reporting system to a mandatory reporting system is beyond the scope of this study. However, simply mandating the current reporting system will not be sufficient to alleviate current concerns. Rather, additional adjustments must be considered whether wholesale beef market information reporting in Canada is reinstated as voluntary or switches to mandatory status upon resumption.

Reduced beef price reporting by packers was likely due in part to evolving industry practices that did not match products included in the Canadian Boxed Beef Report. In particular, more beef was being traded in forms that were either not reported or not reportable (e.g., case ready, branded, or frozen); transacted through formula pricing or forward contracts well in advance of delivery (beyond 21 days); or destined for export markets which are generally excluded from Canadian Boxed Beef Reports. **If the goal of the Canadian Boxed Beef Report is to summarize prices and quantities representative of the Canadian wholesale beef market, then our recommendation is to create a Canadian Comprehensive Boxed Beef Report.** Such a report would be akin to the *National Comprehensive Boxed Beef Cutout - All Fed Steer/Heifer Sales* report under Livestock Mandatory Reporting (LMR) in the United States.

Another adjustment we suggest is adding beef sales destined for United States or Mexico, beyond the few items (i.e., trim, etc.) that are already included, to the Canadian Boxed Beef Report. Even if only sales that met the customary criteria of the report are included this may add sufficient volume to elevate confidence in reported prices and enable more published information to meet confidentiality guidelines. Along these same lines, adding all sales methods (negotiated 0-21 day delivery, negotiated 22 day and up delivery, formula, and forward contract), delivery periods (0-21, 22-60, 61-90, and 91 days and up), and branded products would notably increase volume and provide additional transparency. In addition, if beef x dairy crossbred cattle production continues to increase, including beef products derived from these cattle in beef market reports is advised.

Other approaches like aggregating across categories or over time, computing price indices, and supplementing Canadian voluntarily reported information with U.S. LMR data may increase the

ability to publish some items at times, however, this is likely not a long-term solution. Canadian wholesale beef market information reporting is thin and reporting frequency has worsened over time. Several avenues for increasing reporting of wholesale beef market information by packers are possible including packers and government sharing the costs of participating in the program and assurance contracts to persuade reporting. **A mandatory reporting system should be considered as a potential component of a larger framework of strategies to reinstate and improve the Canadian wholesale beef market information reporting system.** Mandatory price reporting in the United States initially faced divergent opinions by various stakeholders. Over time incremental costs to comply have become inconsequential and the confidence in representativeness and associated value of published market information from LMR has become apparent.

Net benefits to cattle producers, beef packers, and beef buyers of having a trusted and reliable wholesale beef market information reporting system must be routinely evaluated and adjustments made to optimize its value. Accordingly, this project is far from resolving the issue of wholesale beef market information reporting in Canada. Rather, this report aims to enhance ongoing discussions on the subject to further ensure an improved system can be identified, developed, and implemented to best serve the Canadian beef industry.

CHAPTER 1: INTRODUCTION AND OBJECTIVES

1.1. INTRODUCTION

Market reporting is the mechanism utilized to report prices and quantities after transactions have been completed between buyers and sellers. To the extent that the price discovery process functions efficiently within a market, the market reporting system plays an important role to insure accurate and timely communication between buyers and sellers (Lawrence, Shaffer, and Hayenga, 1996). Easily accessible and accurate market information can speed up the process for identifying prices that equate supply and demand, as better information about prices paid in similar transactions leads to faster convergence of market-clearing prices. In addition, accurate, reliable market information reduces risk and pricing errors, or pricing inaccuracy. Easily accessible and accurate market information also provides important market signals, such as value differences, which guide subsequent production and marketing decisions, giving producers incentives to produce what buyers want (Perry et al., 2005; Parcell, Schroeder, and Tonsor, 2009). In other words, the efficiency of a market in discovering price is affected by the information available to market participants (Ward, 1987).

At any point in time, cattle and beef supply and demand are unobservable and unknown. Therefore, market participants rely on market information to efficiently discover prices (Schroeder and Ward, 2006). While the Canadian fed cattle market and information reporting has been studied (Rude and Carlberg, 2006, Schroeder and Ward, 2006; Rude, Carlberg, and Pellow, 2007; Ward, Carlberg, and Brocklebank, 2007; Schulz, Schroeder, and Ward, 2011), there has been less focus on the Canadian wholesale beef market. The boxed beef value, which reflects the composite value that packers receive from grocers, restaurants, further processors, and others at the wholesale level for individual cuts of beef, reflects wholesale market price discovery. Cattle producers and retailers track published boxed beef reports to monitor how well product is moving and to better inform negotiations with packers. Packers also monitor beef market reports and use them as a benchmark in gauging their performance relative to others in the industry.

Canadian boxed beef market information reporting stopped in March 2020 causing frustration and disappointment across industry.¹ Canfax Research Services (henceforth Canfax) had sustained voluntary price reporting with packer support for over 15 years. The lack of public reports elevates costs of collecting market intelligence for firms engaged in the Canadian cattle and beef markets. Uninformed parties in a transaction face a significant risk of receiving or paying a price that is not representative of market conditions. Because of the imbalance in market concentration between many decentralized cattle producers and a few large beef packers, beef packers naturally possess much more market information than do individual cattle producers. Therefore, market transparency has the added benefit of partially counterbalancing market power (Schroeder and Ward, 2006). As a result of these concerns, industry

¹ <https://www.ontariobeef.com/policy-issues/resolution/21-14>

participants and observers have suggested that moving to a mandatory wholesale beef market information reporting system in Canada might reduce problems associated with past voluntary reporting and be a means of restoring reporting. Others recognize the importance of beef market information reporting but have concerns with a mandatory approach. One particular concern relates to how a mandatory approach could be enforced. Opponents of mandating reporting have encouraged industry to explore alternative options for reporting and publishing of Canadian beef market information.

It is understood that the Canadian beef market is different from the United States when it comes to market information reporting. For instance, while either an enhanced voluntary or a mandatory approach could be used to improve reporting, a voluntary approach may be more acceptable, socially and politically, in Canada. Maintaining price discovery in Canada, and not relying solely on another market (i.e., the United States), is a priority. Furthermore, confidentiality of information has been an ongoing issue in Canada as there are a limited number of players at the packing and processing stage of production. Nonetheless, much can be learned from the United States' tribulations and successes in wholesale beef market information reporting.

1.2. OBJECTIVES AND PROCEDURES

The main purpose of this study is to outline options for consideration and suggestions that may help restore and improve Canadian wholesale beef market reporting. Schroeder and Ward (2006) indicate that to be effective, market information must be timely, relevant, accurate, reliable, representative, complete and comprehensive, accessible and widely disseminated, easy to interpret, and utilized by market participants. These core factors along with requirements for data confidentiality are focal points of consideration throughout the study.

Particular objectives include:

1. To document what information (prior to March 2020) was being reported by Canadian packers about beef transactions and how this data was being summarized and published by Canfax. This objective includes assessing changes in confidentiality constraints as well as the quantity and quality of market information over time.
2. To provide a comprehensive account of the motivation for, implementation of, and changes to the Livestock Mandatory Reporting (LMR) program for beef in the United States. This objective includes providing a detailed guide to LMR beef reports.
3. To explore alternative ways to possibly aggregate reported data to enable Canfax to summarize and publish market information while not disclosing confidential information of market participants, maintaining information integrity, and meeting the needs of producers and industry.

To accomplish Objective 1, we first met virtually with Canfax staff to review details of the data, discuss project plans, and obtain needed data. Statistical analyses of the data was used to

assess changes in the quantity and quality of market information over time. We also assessed how confidentiality guidelines impacted consistency of reporting market information. This baseline analysis served as a benchmark for understanding how alternative approaches to market information reporting, summarizing, and publishing of data might impact price discovery.

Structural changes in Canadian beef markets and marketing methods tend to parallel what has happened in the United States. Therefore, a background on the LMR system is useful for understanding challenges and opportunities available for reinstating reporting of Canadian wholesale beef market information. LMR market reports provide valuable information on price and quantity trends, supply and demand conditions, and various sales methods used in the industry while protecting confidentiality of proprietary transactions. Definitions of the various terms are important for interpreting and utilizing the reports. In addition, the various reports cover different time periods, types of beef, and marketing methods. Meeting Objective 2 involves helping beef market information users understand intricacies of LMR-type data and how to get the most benefit from the wealth of data available.

Multiple adjustments to the Canadian wholesale beef reporting system are worthy of consideration. Objective 3 describes alternative reporting, summarizing, and publishing approaches to achieve confidentiality and maintain quality of information available to market participants. We first analyzed aggregating wholesale beef market information across categories or over time. Then historical wholesale market data from Canfax was used to determine thinness of reporting. There may be important volume “waiting in the wings” that could be utilized in reporting and this is discussed in the context of comprehensive market information reporting as opposed to only reporting a subset of the beef trade. Of note, additional loads could be captured by adding formula and/or export trade to Canadian Boxed Beef Reports. We then discuss options of computing price indices or supplementing Canadian information with LMR information from the United States such that a “Northern America” boxed beef report could replace a standalone Canadian Boxed Beef Report.

CHAPTER 2: THE CANADIAN WHOLESALE BEEF MARKET

2.1. THE CANADIAN BOXED BEEF REPORT

Prior to 2003-2004 U.S. boxed beef cutout values, reported by the Agricultural Marketing Service (AMS) of the U.S. Department of Agriculture (USDA), converted to Canadian dollars were used to proxy the value of Canadian beef carcasses. This was a viable measure due to integration within the North American cattle and beef industries and the availability of publically reported U.S. data. Following the closure of the U.S.-Canadian border in 2003, market integration eroded sharply (Miljkovic 2007; Rude, Carlberg, and Pellow 2007; Church and Gordon 2007) and the need for a separate Canadian boxed beef report, based on Canadian sales became apparent. Still, marketing and pricing practices in the two countries by cattle

feeders and meat packers both before and after the border closing were similar (Ward, Carlberg, and Brocklebank 2007).

The Canadian Boxed Beef model was originally developed in 2003-2004. Canfax worked in collaboration with Canadian beef packing plants and the Canadian Meat Council to collect and compile the appropriate information for the boxed beef report. Individual weighted average beef prices were provided by Agriculture and Agri-Food Canada (AAFC) who collected data weekly from domestic packers whom voluntarily reported. Cutout model yields were maintained by Canfax who published the weekly Canadian Boxed Beef Report.² This report was a useful tool for industry in monitoring beef prices, tracking vertical sector price spreads (i.e., farm gate to wholesale, wholesale to retail, and farm gate to retail), observing seasonality trends, and equating boxed beef prices to live animal equivalents (Canfax, 2008).

The Canadian Boxed Beef model and report was reviewed and modified several times, since its inception, to ensure the values generated accurately reflected contemporary compositions and market realities (Canfax, 2010). Of note, a revised boxed beef model was implemented starting week ending July 2, 2010. Beginning in July 2005 the Canadian boxed beef cutout was at a premium to the U.S. boxed beef cutout, converted to Canadian dollars, for a majority of the time. This triggered a review of the Canadian boxed beef model and report and subsequently a modification, where necessary, to ensure cutout values generated accurately reflected current cutout compositions and market realities. The Canadian Boxed Beef model had placed too much weight on higher priced middle meats, thereby, inflating the cutout value by approximately \$10 per pound. In addition, a dozen cuts were added to the Canadian Boxed Beef report and primal yields were updated to be consistent with U.S. boxed beef reporting.

In addition to publishing information on individual beef products, Canfax calculated values for seven major beef primals (chuck, rib, loin, round, brisket, short plate, flank) that were released in weekly reports. Moreover, Canfax calculated a Canadian AAA carcass cutout and Canadian AA carcass cutout from primal prices. Price comparisons to U.S. equivalent cuts, primals, and carcass cutouts were provided.³ The U.S. Department of Agriculture, Agricultural Marketing Service report used was the *National Weekly Boxed Beef Cutout And Boxed Beef Cuts - Negotiated Sales* (LM_XB459). Because the United States is Canada's largest competitor in the production of grain-fed beef, being able to compare cutout values is valuable to evaluate competitiveness and industry performance.

² The Canadian Boxed Beef report was first available on the Canfax website on October 6, 2003 (Canfax, 2008). Historical weekly reports currently available on the Canfax website date back to week ending January 1, 2016—<https://www.canfax.ca/resources/reports/boxed-beef-reports/canadian-boxed-beef-report-historical.html>.

³ Canadian and U.S. cutout values are not exactly comparable simply by adjusting for the exchange rate. The hanging tender, kidney, and KPH (kidney, pelvic, and heart fat) are included in the U.S. cutout value but are excluded in the Canadian cutout. A formula was proposed (Canfax, 2010) to convert the Canadian cutout to U.S. equivalents in Canadian dollars but, unfortunately, data did not become available for the Canadian hanging tender, kidney and KPH drop credit to be calculated (personal communication, Brenna Grant, Manager of Canfax).

Canfax (2018) provides a detailed summary of the report along with the lastly used cutting yields and example calculations. Reported prices and volumes met the following criteria:

- Sales are negotiated with delivery to the domestic market within 0-21 days.
- Canadian sales only; except “*” indicates all sales, on items including export volumes.
- Prices are quoted in Canadian dollars per pound.
- Beef cut items are from non-dairy bred steer and heifer beef.
- Cut items are no older than 14 days from the date of manufacture and are limited to AAA and AA grades.⁴
- Branded product (Certified Angus Beef, Canada Gold, etc.) are excluded.
- Ground beef and beef trimmings are from both dairy bred and non-dairy bred steer/heifer beef and are no older than 7 days from the time of manufacture.
- Prices are quoted FOB the plant (delivery price minus freight cost).
- Total load counts include AAA and AA grades. One load equals 40,000 pounds.

Canadian boxed beef reporting was discontinued in March 2020. The last report was for the week ending Friday, March 20, 2020. Appendix A.1 provides the final published report. Confidentiality concerns, which had persisted for years, and COVID-19 related disruptions were preclusions identified by Canadian beef packers which ultimately led them to cease reporting of beef trade (personal communication, Brenna Grant, Manager of Canfax). Even before the reporting series was suspended in March 2020, multiple wholesale beef products frequently did not have a published weekly price quote available, and when price quotes were released, a low percentage volume of trade was represented.

2.2. CANADIAN BEEF PACKING PLANTS AND ESTABLISHMENTS

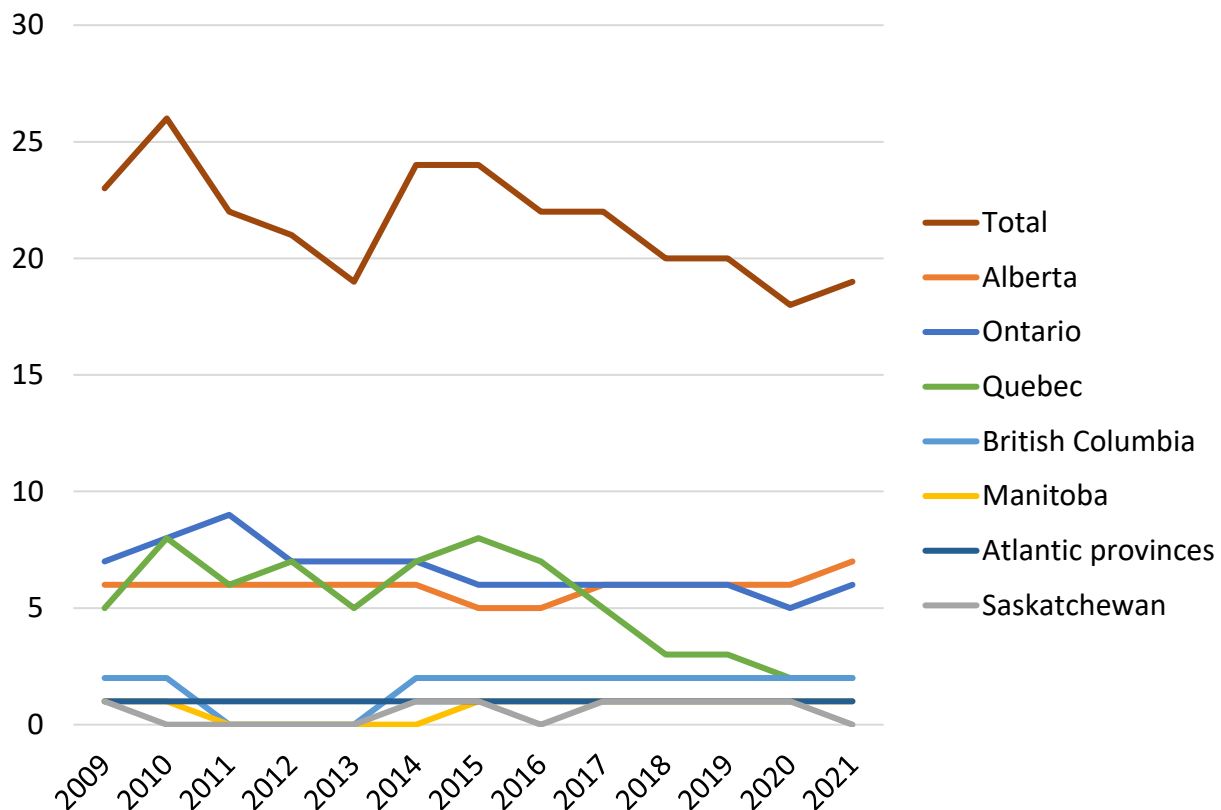
There were 19 cattle slaughter plants in Canada operating under Federal Inspection (FI) in 2021 (Canadian Food Inspection Agency, 2021a). This was an increase of one plant from 2020 but down from 26 plants in 2010 and 24 plants in 2014 and 2015 (Figure 2.2.1). Quebec has seen the largest decline in the number of FI cattle slaughter plants having eight plants in 2010 and 2015 and only two plants operating by 2021. Alberta added one plant in 2021 while Saskatchewan is down from one FI cattle slaughter plant in recent years to zero in 2021. The last full year of consistent FI cattle slaughter in Saskatchewan was 2008 at the XL Foods

⁴ The Canadian beef grading system follows standards overseen by the Government of Canada based on industry and government recommendations. The Canadian Beef Grading Agency, a private, non-profit corporation, is accredited by the Canadian Food Inspection Agency to deliver grading services for beef in Canada. Trained graders visually assess the whole carcass based on several criteria and assign a grade. While the grading system is voluntary, virtually all fed beef carcasses processed commercially in Canada are graded. All carcasses graded Canada A, AAA, or AAA receive both a quality grade and a yield grade. The common quality grade specifications for Canada A, AAA, or AAA include youthful maturity (age), good to excellent muscling with some deficiencies, firm and bright red ribeye muscle, firm and white or amber fat color and texture, and 2 millimeters (mm) or more of fat measure. Canada A, AA, and AAA grades differ by the amount of marbling where A has trace marbling, AA has slight marbling, and AAA has small marbling. In 2021, the Canada A, AA and AAA grades together represented 98.4% of all graded beef from fed slaughter cattle in Canada. The U.S. equivalent grades for Canada AAA, AA and A are USDA Choice, Select, and Standard, respectively (Beef Cattle Research Council, 2022).

operation in Moose Jaw. That year FI cattle slaughter was less than 250,000 head of which over half was cows and bulls (Van Solkema and Grier, 2022). That plant stopped operations in April 2009 (Canadian Food Inspection Agency, 2021a). Since that time, there has been sporadic, very short periods, and a small volume of FI cattle slaughter in the province. However, the Government of Saskatchewan has set a goal in the provincial growth plan to double meat processing and animal feed value-added revenue to more than \$1 billion by 2030 (Van Solkema and Grier, 2022).

Cattle slaughter includes steers, heifers, cows, and bulls but excludes calf slaughter. Beef from cattle slaughtered and processed under FI can be sold between provinces and exported internationally. According to the Canadian Beef Grading Agency, fed steer and heifer slaughter amounted to 86% of total FI cattle slaughter in 2021 while non-fed cows, both dairy and beef, and some bulls comprised 14%. Canadian FI cattle slaughter plants, even the largest ones, typically slaughter both fed and non-fed cattle (Serecon Inc. with Kevin Grier Consulting, 2019; Canfax, 2021). This is not a common practice in the United States where normally plants are dedicated to either steers and heifers or cows and bulls. Some Canadian cattle slaughter plants may specialize, or prefer, processing fed cattle but may still procure non-fed cattle to fill existing market obligations, especially when the supply of fed cattle is tight and prices are high. Conversely, these plants likely reduce non-fed cattle slaughter when cattle supplies increase and prices moderate.

Figure 2.2.1. Number of Canadian FI Cattle Slaughter Plants



Source: CFIA. Compiled by AAFC, Animal industry division, Market information section.

Federally-inspected cattle slaughter is predominantly in western Canada, specifically Alberta, where most of the cattle finishing capacity is located. Figure 2.2.2 shows January 1, 2022 total cattle inventory by province, FI cattle slaughter plant locations, and sizes of plants. The seven plants in Alberta, the two plants in British Columbia, and the one plant in Manitoba accounted for 79% of cattle slaughter in FI plants in 2021 (Canadian Beef Grading Agency, 2022). The six plants in Ontario accounted for 19% of the FI cattle slaughter volume. The remaining 2% was distributed across the two plants in Quebec and the one plant in Prince Edward Island.

A beef packer buys cattle for slaughter, manufactures or prepares beef or beef products for sale or shipment, or markets beef, beef products, or cattle products in an unmanufactured form, acting as a wholesale broker, dealer, or distributor.⁵ A packer may have multiple plants. According to the Canadian Food Inspection Agency (2021b), 91% of the total cattle slaughtered under FI in Canada were by the four largest establishments (companies or firms) in 2021.⁶ In each particular region this is all, or almost all, of the FI cattle—British Columbia/Alberta (99%), Saskatchewan/Manitoba (100%), Ontario (99%), and Quebec (100%). These shares have been relatively consistent over at least the last decade. However, these four firm calculations are somewhat misleading as there are only two major firms. Accordingly, approximately 84% of the total FI cattle slaughtered in Canada were by the two largest establishments, and three largest plants, in 2021.⁷ This declined from 91%, 87%, and 89% in 2018, 2019, and 2020, respectively. Table 2.2.1 lists Canada’s 19 FI cattle plants by province, their company name, slaughter type, and estimated weekly slaughter capacity.

The Cargill Ltd. plant in High River, Alberta and the JBS Food Canada Inc. plant in Brooks, Alberta dominate Canadian beef packing, each with a slaughter capacity of about 22,000 head per week (Serecon Inc. with Kevin Grier Consulting, 2019; Canfax, 2021).⁸ A second size tier consists of the Cargill Ltd. Guelph, Ontario plant which has a weekly capacity of about 9,000 head and the smaller Harmony Beef Company Ltd. plant (Balzac, Alberta) that has a capacity of roughly 3,750 head per week. **For a frame of reference, these four packing plants, and three**

⁵ <https://www.ams.usda.gov/rules-regulations/packers-and-stockyards-act/regulated-entities/packer>

⁶ The four-firm concentration ratio (CR4), the combined market share of the four largest firms, is one common measure of how economically concentrated an industry or market is (Ward, 2010). For example, in 1977, the largest four beef-packing firms controlled 25% of U.S. steer and heifer slaughter, compared to 85% in 2019 (The White House, 2021; Federal Register, 2022; NAMI, 2022). The combined market share of the four largest steer and heifer slaughterers remained stable between 83% and 85% from 2010 to 2019 and dropped to 81% in 2020 (Federal Register, 2022). The North American Meat Institute (2022) suggests some clarification is needed because when factoring in non-fed cattle (cow and bull) slaughter plants they own; the four largest beef packers represent about 70% of total U.S. beef production.

⁷ Estimated weekly slaughter capacity (Canfax, 2021; Canadian Food Inspection Agency, 2021a) of the two largest establishments (three largest plants) was multiplied by 51 weeks to provide an annual slaughter estimate of 2,728,500 head. According to data compiled by Agriculture and Agri-Food Canada, from the Canadian Beef Grading Agency, the number of cattle slaughtered in FI establishments in Canada was 3,258,879 in 2021, 3,057,511 in 2020, 3,149,503 in 2019, and 3,011,107 in 2018.

⁸ Multinational beef packers treat their Canadian plants as part of a larger network that requires management to use Canadian-sourced cattle in ways that complement and coordinate but not necessarily compete with their U.S. based plants (Rude, Harrison, and Carlberg, 2010).

firms would be the only Canadian plants required to report boxed beef trade under the LMR program if they were located in the United States.⁹

A third size tier of Canadian packers includes the companies and plants of St. Helen's Meat Packers Ltd. (2,000 head per week) and TruHarvest Meats Inc. (1,500 head per week) in Toronto, Ontario, True North Foods (1,000 head per week) in Carman, Manitoba, and Bouvry Export Co. Ltd. (1,000 head per week) in Fort McLeod, Alberta.¹⁰ A feasibility study completed in 2022, commissioned by the Saskatchewan Stock Growers Association, indicated that with the right marketing strategies and plant management, a facility harvesting between 500 and 1,000 head of cattle per day could be commercially viable in Saskatchewan (Van Solkema and Grier, 2022).

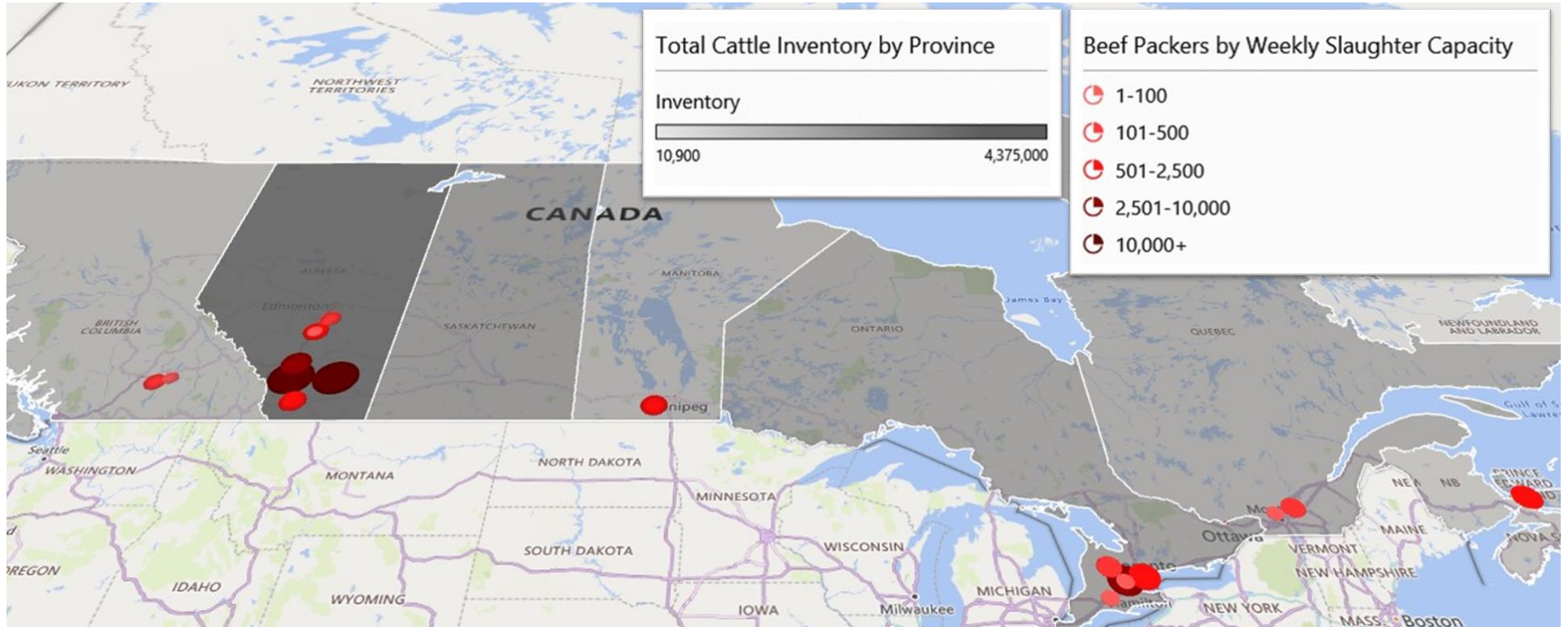
There are a number of regional FI packers that may each slaughter between 20 and 650 head of cattle per week (Table 2.2.1). In addition, Canada has hundreds of provincially inspected beef processors, but they only processed 5% (141,850 head) of the total fed cattle and 6% (197,187) of the total cattle in 2021 (Canadian Beef Grading Agency, 2022). Assuming 51 slaughter weeks per year this amounts to 2,781 head of fed cattle or 3,866 head of total cattle per week. Recent work has looked at the feasibility of small local meatpacking plants in Canada with little evidence that a less concentrated, more geographically dispersed sector would perform better (Rude, 2020). In addition, they indicated that most small start-ups would at least initially be provincially regulated because of the expense and complex process of becoming federally regulated.

Federally inspected facilities processed, on average, 54,728 head of fed cattle per week in 2021. This was up 5.9% from 2020 and the largest since 2005. Canadian cattle slaughter has a seasonal pattern and can exhibit notable week-to-week variability. For example, in 2021, weekly Canadian FI fed cattle slaughter had a coefficient of variation of 10.5% whereas weekly U.S FI fed cattle slaughter had a coefficient of variation of 6.5% demonstrating that Canadian slaughter volumes are nearly twice as variable relative to the average volume in each country. **The highly concentrated nature of the Canadian beef packing industry plus the composition (fed and non-fed at individual plants) and variability of slaughter challenges wholesale beef market reporting.**

⁹ Under the LMR Act of 1999 in the United States, packers who annually process more than 125,000 cattle are required to report details of all transactions involving cattle and the details of all transactions involving domestic and export sales of boxed beef cuts. Distributors, grinders, exporters, etc. who do not slaughter, do not submit LMR sales data.

¹⁰ St. Helen's Meat Packers Ltd. and TruHarvest Meats Inc. slaughter cattle and calves and Bouvry Export Co. Ltd. slaughters cattle, bison, and horses (Canfax, 2021).

Figure 2.2.2. Estimated 2022 Total Cattle Density by Province and Canadian Federally-Inspected Beef Packing Plant Locations and Size



Source: Author's calculations from a compilation of data including Canfax (2021) and the Canadian Food Inspection Agency (2021a).

Table 2.2.1. Canadian Federally-Inspected Cattle Slaughter Plants, 2021

Province	Company name	Slaughter type	Estimated Weekly Slaughter Capacity	Average Slaughter (Top 4 Establishments)
British Columbia	Lambert Creek Organic Meats Ltd.	Steers & Heifers	50	286,090 (99%)
British Columbia	KML Meat Processed Limited	Steers, Heifers, Cows, & Bulls	250	
Alberta	Lacombe Research and Development Centre	Steers, Heifers, Cows, Bulls, Bison, Elk, & Hogs	20	
Alberta	Bouvry Export Co. Ltd.	Steers, Heifers, Cows, Bulls, Bison, & Horses	1,000	
Alberta	Canadian Premium Meats Inc.	Steers, Cows, Bulls, Bison, & Elk	650	
Alberta	Cargill Meat Solutions	Steers, Heifers, & Cows	22,000	
Alberta	Harmony Beef Company Ltd.	Steers & Heifers	3,750	
Alberta	JBS Food Canada Inc.	Steers, Heifers, Cows, & Bulls	22,500	
Alberta	Prairie Farm Food Inc.	Pork, Beef, & Bison	N/A	
Manitoba	True North Foods	Steers, Heifers, Cows, & Bulls	1,000	N/A (100%)
Ontario	Cargill Meat Solutions/Guelph	Steers, Heifers, & Cows	9,000	101,643 (99%)
Ontario	F.G.O. Organic Processing Ltd.	Hogs, Lamb, & Beef	20	
Ontario	Kinder Foods	Steers, Heifers, Cows, & Bulls	250	
Ontario	St. Helen's Meat Packers Ltd.	Steers, Heifers, Cows, Bulls, & Calves	2,000	
Ontario	TruHarvest Meats Inc.	Steers, Heifers, & Calves	1,500	
Ontario	University of Guelph	Steers, Heifers, Cows, Bulls, & Calves	20	
Quebec	Abattoir Jacques Forget Ltee	Steers, Heifers, Cows, & Calves	50	N/A (100%)
Quebec	Viande Richelieu Inc.	Steers, Heifers, Cows, & Bulls	400	
Atlantic provinces	Atlantic Beef Products Inc.	Steers, Heifers, Cows, & Bulls	600	N/A (N/A)

Source: Canfax (2021); Canadian Food Inspection Agency (2021a).

Notes: N/A—Not available due to confidentiality or unable to obtain. Average Slaughter—Average number of cattle slaughtered per establishment per year. Top 4 Establishments—Percent of total federally inspected cattle slaughtered by the four largest establishments (companies) in that province/region.

2.3. PRODUCTION REPRESENTED BY CANADIAN BOXED BEEF REPORT

The Canadian Boxed Beef Report contains the total load count for a week which is the summation of Canadian AAA and AA grades. This load count total, converted to pounds (one load equals 40,000 pounds), can be compared to the weekly pounds of Canadian FI fed cattle production to provide an indication of the volume of fed beef production represented in the Canadian Boxed Beef Report. Recall, the boxed beef load count volume includes negotiated sales with delivery to the Canadian market within 0-21 days, AAA and AA grades only, and excludes dairy breed steer and heifer beef and branded products.

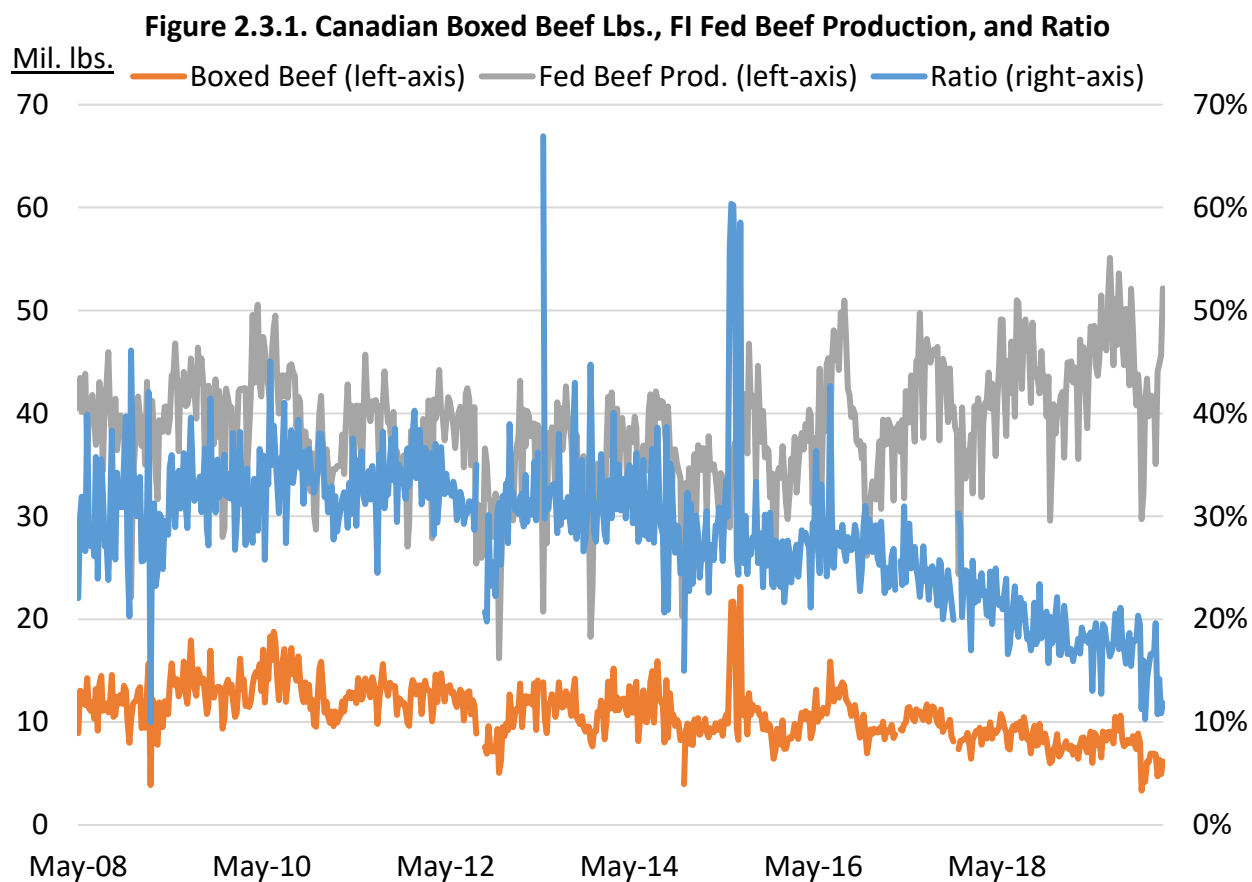
For the period week ending May 30, 2008 through week ending March 20, 2020 the boxed beef volume has averaged 28.1% of FI fed beef production (Figure 2.3.1).¹¹ **The cutout volume represented over 30% of fed beef production during 2008-2014 and began a precipitous decline and was just over 10% before it ceased being reported in March 2020.** This was despite beef production increasing during the 2015-2020 period. There were a few very large weekly load counts reported in 2013 and 2015, especially relative to weekly fed beef production.¹² One explanation for these outliers could be that a packing plant, or plants, reported more transactions than met the specified criteria (personal communication, Brenna Grant, Manager of Canfax).¹³ This could have consisted of formula or forward contract sales and/or export trade. Nevertheless, this provides some evidence, and the possible magnitude, of additional wholesale beef volume that could be conceivably, with little effort, reported by packers.

To determine, approximately, how many fed cattle were represented in the weekly Canadian Boxed Beef Report, we divide the total boxed beef pounds (total load count multiplied by 40,000 pounds) by a weighted average of steer and heifer dressed weights. Since May 2008, this weekly head count has averaged 12,755 head with a maximum of 23,411 head and a minimum of 3,804 head. During the 2008-2014 period, the average was 14,569 head while it had diminished to 9,096 head on average in 2019 and 6,511 head in during the first quarter of 2020 before the Canadian Boxed Beef Report was suspended.

¹¹ The Canadian Boxed Beef Report was not published for eleven week ending dates during this period. These week ending dates included 10/5/12, 10/12/12, 10/19/12, 10/26/12, 6/7/13, 6/14/13, 12/26/14, 4/28/17, 5/5/17, 12/15/17, and 12/22/17. Gaps in reporting were due to not meeting confidentiality requirements. That occurred when staff was on holidays or when trade was so thin that packers did not report.

¹² The week ending dates included June 21, 2013; July 3, 2015; July 10, 2015; July 17, 2015; July 24, 2015; and August 4, 2015.

¹³ Packers were responsible to sort for negotiated sales 0-21 days out to report (personal communication, Brenna Grant, Manager of Canfax).

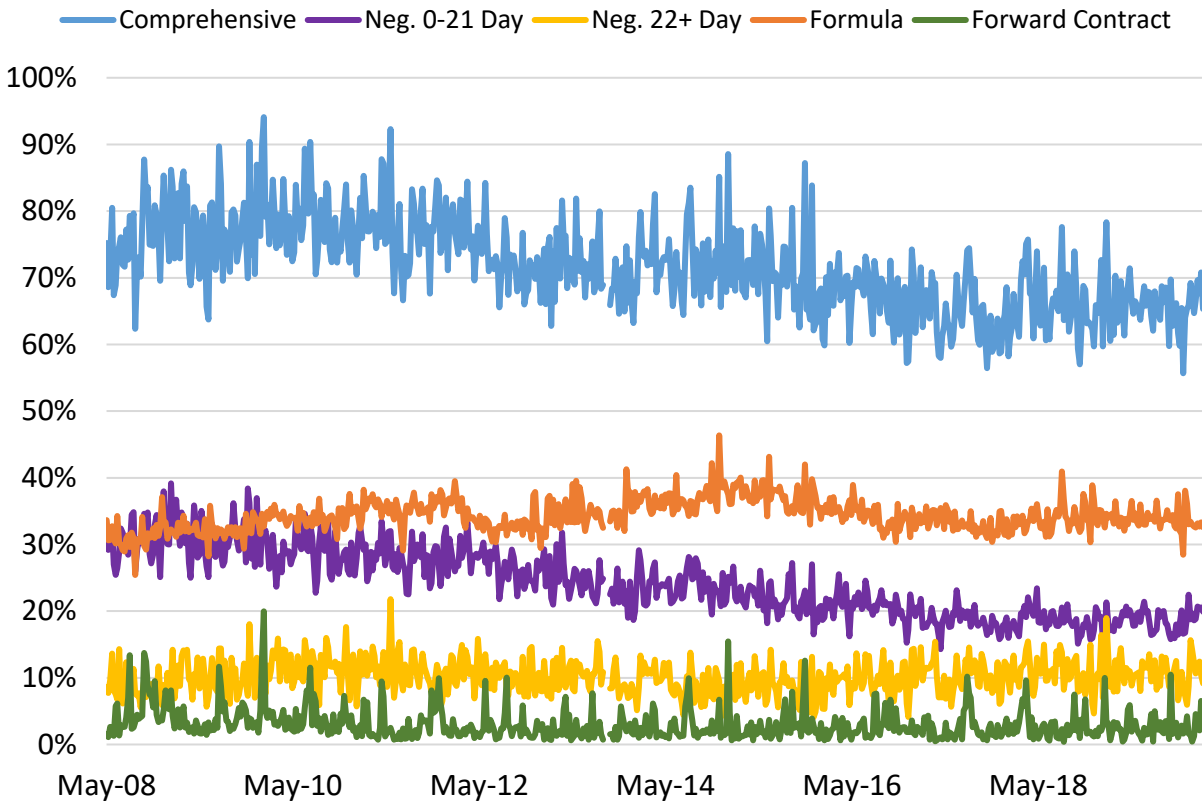


The National Comprehensive Boxed Beef Cutout – All Fed Steer/Heifer Sales (LM_XB463) published by USDA-AMS, can be used to draw comparisons for the U.S. wholesale beef market. The report includes a quality grade (prime, branded, choice, select, ungraded), sales type (negotiated for 0-21 day delivery, negotiated for 22 day delivery or longer, formula, forward contract), destination (domestic, NAFTA exports, overseas exports), and delivery period (0-21 days, 22-60 days, 61-90 days, 91 days and up) breakdown. These primal cut volumes and values are combined into a single weighted average carcass cutout equivalent. This report is released weekly.

For the week ending May 30, 2008 through week ending March 20, 2020 period, the U.S. comprehensive boxed beef load count, converted to pounds, accounted for 71.6% of U.S. FI fed beef production on average (Figure 2.3.2).¹⁴ This share averaged 77% in 2008-2011, 70% in 2012-2018, and 66% in 2019-2020. From 2016 through March 2020 negotiated sales for 0-21 day delivery averaged 19.2% of fed beef production and negotiated sales for 22 day delivery or longer averaged 10.3%. Over this four-plus year period, formula sales accounted for 33.9% of fed beef production while forward contract sales were 2.6%.

¹⁴ USDA-AMS publishes the pounds of FI beef production. To calculate FI fed beef production, weekly pounds of FI beef production was multiplied by the ratio of FI steer and heifer slaughter to FI cattle slaughter.

Figure 2.3.2. Ratio of U.S. Boxed Beef Lbs. to FI Fed Beef Production



Schroeder, Coffey, and Tonsor (2021) indicate that how beef packers market wholesale boxed beef influences how they prefer to purchase fed cattle. This symmetry includes several examples. If forward beef sales become more common, packers have increased incentives to likewise increase forward purchases of fed cattle. More negotiated pricing of boxed beef beyond 21 days, suggests to manage margin risk, packers will likely strive to secure purchase prices for more cattle in advance. Similarly, if boxed beef is being formula priced, this creates incentives for more fed cattle formula pricing as well since similar factors motivate this pricing method for each procurement and sales.

Given the voluntary nature of Canadian wholesale beef market reporting, it is difficult to ascertain whether the decline in reported boxed beef volume, or the share of FI fed beef production represented, is due to a decline in voluntary reporting participation by packers, a decline in trade that matches Canadian Boxed Beef Report specifications, or a combination of both. This raises concerns about representativeness of reported prices.

2.4. CONFIDENTIALITY CONSTRAINTS IN CANADIAN BOXED BEEF REPORTING

Canfax was responsible for public reporting of the Canadian wholesale beef market. The process Canfax followed was multi-faceted. The data gathering process first consisted of

information being submitted weekly by beef packers to Agriculture and Agri-Food Canada (AAFC). Participation by beef packers was entirely voluntary. Beef packers were responsible for sorting out and reporting eligible beef product quantities (load count) and average, minimum, and maximum prices from the previous week. Appendix A.2 provides a screen shot of the Microsoft Excel template that was used to submit the data.

Agriculture and Agri-Food Canada (AAFC) did not disclose sources of information. To protect beef packer identification they calculated a weighted average for each product price. They did not concern themselves with the number of packers reporting a product in a particular week. Agriculture and Agri-Food Canada (AAFC) provided Canfax with a high, low, and weighted average price for each product along with a volume (load count). Canfax imported this data into their database and if there was no high-low price range provided for a particular cut they would suppress the product price in the Canadian Boxed Beef Report. The suppressed data was still used in the primal and carcass cutout calculations.

Tables 2.4.1 through 2.4.5 summarize the number of loads reported annually by grade for individual beef products, thin meats, trim, and ground beef over the 2005-2019 period. In the Canadian Boxed Beef Report products are published by quality grade (AAA or AA) while thin meats are published as AAA/AA, trim is published as AAA & AA, and ground beef does not have a listed designation. We provide separate load count totals for each quality grade to better understand changes in reported volumes. For AAA quality grades, out of the 54 products, thin meats, trim, and ground beef, there were 10 products that had no reported load volume in 2019. This compares to the 2010-2018 period where only one to three AAA items had no reported load volume annually. Findings were similar for AA quality grade products (Table 2.4.3) while Table 2.3.4 shows that reported loads of AA quality grade thin meats, trim, and ground beef were nonexistence or very small volumes. An alternative explanation is that packers could have chosen to report data for these items all as AAA grade knowing they would be aggregated anyway when published.

While analyzing reported load volume is informative, it is also useful to consider volatility in reported load volume over time. The annual coefficient of variation (COV) in weekly reported load volume is shown in Table 2.4.5. The COV of weekly reported load volume is greater for 54 of the 83 wholesale beef products, thin meats, trim, and ground beef in the 2015-2019 period compared to the 2010-2014 period. For example, the coefficient of variation in weekly reported volume for a bone-in shortrib increased from 0.69% to 1.97% from 2010-2014 to 2015-2019. Thus, average load volume reported has declined and variation in load count represented has increased over time. **The key implication is that a smaller portion of wholesale beef trade was represented in weekly Canadian Boxed Beef Reports, and variation in how much trade was being reported by packers each week was increasing.**

Table 2.4.1. Number of AAA Loads by Product, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	0.0	0.0	0.0	0.0	0.02	92.4	50.7	27.7	30.3	24.4	20.9	12.8	3.3	2.3	0.4
Semi-Boneless	0.0	0.0	0.0	0.0	0.0	75.9	124.4	47.7	55.1	11.5	11.4	6.8	5.9	10.5	10.4
Short Cut shoulder clod	153.3	118.4	51.0	24.6	78.5	101.9	152.3	84.1	92.8	70.4	123.2	106.4	68.4	62.0	5.6
Clod Heart	0.0	0.0	0.0	0.0	0.0	2.4	5.2	6.6	12.1	5.9	10.3	17.2	3.4	0.0	0.0
Clod Tender	0.0	0.0	0.0	0.0	0.0	8.9	22.1	20.8	24.9	23.1	18.9	16.3	9.6	4.4	5.2
2 Piece Boneless Chuck	3.5	0.0	1.0	0.01	0.04	26.3	3.9	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Chuck Roll	289.0	245.9	197.6	91.9	357.3	496.3	560.5	579.1	655.3	573.4	308.1	170.5	74.9	110.3	164.6
Chuck Roll 0x0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.5	0.5	0.5	0.3	0.0
Oven Ready Rib	38.4	26.4	30.5	37.5	27.4	8.9	24.6	10.5	6.6	14.6	26.4	24.2	6.8	1.8	1.1
Bone-in Lipon Ribeye 17 up	140.5	148.6	111.8	155.2	255.0	342.6	286.0	267.9	252.3	299.3	114.9	267.7	23.3	0.3	0.0
Bone-in Lipon Ribeye 17 dn	12.8	7.4	6.0	6.6	11.1	14.5	16.1	14.2	18.5	48.1	213.9	79.6	155.0	208.8	135.0
Boneless Lipon Ribeye 14 up	166.2	123.0	82.2	67.5	46.7	34.0	17.9	27.5	21.8	30.9	40.8	79.5	28.8	20.2	16.8
Boneless Lipon Ribeye 14 dn	27.3	16.3	15.2	11.1	10.7	22.4	18.2	12.6	8.9	9.2	8.4	1.3	0.5	0.3	0.0
Back Ribs	1.0	0.0	2.4	0.0	0.1	0.5	7.4	3.7	1.5	1.2	1.0	0.6	0.6	0.5	0.3
Short Loin 1x0	75.8	43.5	23.3	34.9	68.8	70.8	42.8	19.9	8.8	39.6	36.6	54.7	27.5	35.8	39.1
Striploin 0x1 13up	230.2	239.9	194.5	229.2	262.7	310.5	325.8	323.4	304.7	347.1	373.9	414.8	318.3	398.0	440.7
Striploin 0x1 13dn	63.3	69.9	42.2	33.3	18.1	17.1	13.7	11.4	14.1	15.9	10.0	0.9	0.5	0.3	0.0
Top Butt 13up	384.9	353.0	266.8	332.6	359.2	357.0	391.3	411.1	354.8	409.8	474.4	561.1	421.9	282.2	258.8
Top Butt 13dn	6.6	2.0	1.2	1.5	0.9	0.9	0.5	0.5	0.5	19.0	10.3	0.6	0.5	0.3	0.0
PSMO Tenderloin	192.2	168.1	135.8	154.8	187.1	213.7	197.8	181.2	175.0	212.3	234.3	236.3	172.6	217.6	209.2
Butt Tenderloin	16.1	12.3	10.1	6.9	22.5	17.8	5.6	4.3	2.7	7.8	7.9	14.3	8.0	8.0	7.3
Boneless Round	2.6	0.0	0.0	0.0	0.04	0.2	0.0	0.0	0.0	0.5	0.5	0.4	0.2	0.0	0.0
Inside Round 1"	8.2	4.3	1.0	5.1	8.3	85.6	113.8	7.4	0.5	10.8	0.6	0.6	0.5	0.1	0.0
Inside Round	235.9	213.9	172.3	184.8	297.0	246.2	216.0	245.5	170.1	234.4	320.5	285.9	256.4	301.2	368.8
Outside Flat	383.2	313.1	253.7	217.1	329.0	212.7	183.7	205.5	189.4	207.0	228.8	186.3	146.4	193.6	203.2
Eye of round	168.9	138.5	107.8	146.5	156.2	161.1	188.9	190.2	175.7	174.9	199.9	223.6	174.4	236.7	233.8
Peeled Knuckle	340.7	293.0	232.7	255.5	306.7	297.0	194.4	171.6	160.3	190.5	180.7	233.7	204.8	258.9	245.7
Gooseneck	0.0	0.0	0.0	0.0	0.0	76.6	99.6	4.7	0.5	0.5	0.5	0.7	0.5	0.1	0.0

Table 2.4.2. Number of AAA Loads, Thin Meats, Trim (Fed), and Ground Beef, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Thin Meats</u>															
Chuck Tender	202.9	171.3	127.1	148.7	170.4	172.7	183.2	147.6	205.2	167.1	148.9	221.9	185.1	188.3	201.3
Briskets 120	1009.6	799.7	773.0	826.2	794.6	881.7	889.4	831.1	834.9	611.6	821.6	324.5	208.4	132.6	204.8
Bone-in Chuck Shortrib	110.7	170.5	140.7	205.0	310.3	334.5	296.7	317.5	324.9	224.4	152.8	198.7	152.1	178.1	208.8
Flat Iron	62.3	50.8	55.6	52.6	64.9	44.7	68.6	58.1	42.7	35.2	23.4	74.3	47.8	45.8	31.3
Blademeat	332.2	325.0	232.9	254.8	293.8	309.9	281.6	262.1	321.2	283.4	246.5	382.2	347.6	300.3	289.7
Bone-in Shortrib	204.1	220.4	219.8	216.2	212.7	217.6	118.4	112.7	101.6	91.5	13.2	9.5	12.9	0.9	8.3
Outside Skirt	131.8	104.1	63.6	69.3	63.3	106.3	118.9	89.9	89.1	44.0	15.6	0.5	0.7	1.1	3.8
Inside Skirt	334.3	333.5	212.5	219.8	271.6	292.4	258.3	236.4	242.7	214.9	140.9	38.1	1.0	4.4	0.8
Flapmeat	303.9	244.5	141.5	212.4	240.6	260.6	169.6	182.3	147.9	152.1	77.3	20.4	9.5	20.9	14.7
Ball Tips	230.5	194.7	132.4	125.3	176.0	184.3	68.4	51.3	40.5	10.8	4.7	0.5	0.7	0.5	0.5
Tri Tips	365.1	253.6	162.1	182.2	225.7	216.6	159.7	191.5	159.5	192.5	112.0	22.4	1.9	1.0	1.4
Flank Steak	168.7	174.4	130.1	148.8	177.7	181.4	132.1	115.8	115.8	125.8	125.3	75.9	62.6	53.4	58.8
Pectoral Muscle	131.6	132.5	113.9	112.3	118.5	116.2	117.8	116.1	112.9	143.8	153.9	201.1	156.0	189.3	172.1
Loinetails	150.9	108.1	80.0	71.3	109.9	109.8	107.8	103.8	72.8	80.5	98.8	45.2	1.0	26.8	40.2
<u>Trim (Fed)</u>															
Fresh 50% Lean Trimmings	3186.3	2261.2	1207.9	1367.3	1601.5	1856.4	1701.5	1423.2	1450.1	1791.2	1316.7	1987.6	1980.4	1996.9	1430.9
Fresh 65% Lean Trimmings	1722.3	1400.6	888.8	744.8	1046.3	1252.5	988.9	844.4	836.8	908.3	717.9	837.3	658.8	658.0	667.6
Fresh 75% Lean Trimmings	460.0	537.5	478.3	493.6	1021.5	1224.0	920.2	473.0	15.9	37.2	7.7	56.7	4.6	5.6	12.8
Fresh 81% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.4	274.5	149.2
Fresh 85% Lean Trimmings	704.2	938.4	777.8	898.7	515.4	404.2	573.8	713.6	932.8	1106.8	1386.7	1229.3	1059.8	1052.9	781.0
Shankmeat	15.5	6.2	10.1	10.1	1.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
<u>Ground Beef</u>															
Extra Lean Ground Beef	0.0	0.0	0.0	0.0	0.0	53.3	128.8	91.0	191.0	294.3	357.2	307.7	364.4	315.0	335.5
Lean Ground Beef	0.0	0.0	0.0	0.0	0.0	533.3	849.8	672.3	552.1	546.0	848.5	718.4	593.6	113.0	161.6
Medium Ground Beef	0.0	0.0	0.0	0.0	0.0	41.3	68.3	63.3	54.5	229.2	185.9	203.7	297.9	165.1	96.1
Regular Ground Beef	0.0	0.0	0.0	0.0	0.0	21.0	18.3	21.5	70.0	143.8	196.4	193.6	167.8	217.6	168.4
Ground Chuck	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Ground Sirloin	0.0	0.0	0.0	0.0	0.0	7.0	5.5	0.1	0.5	0.5	0.5	0.5	0.6	0.5	0.5

Table 2.4.3. Number of AA Loads by Product, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	401.9	317.5	302.5	257.6	400.0	275.3	50.7	28.0	30.3	24.4	20.9	12.8	3.3	2.3	0.0
Semi-Boneless	0.0	0.0	0.0	0.0	0.0	75.9	124.4	49.1	55.1	11.5	11.4	6.8	5.9	3.6	0.0
Short Cut shoulder clod	768.7	804.4	678.9	793.6	341.7	156.5	152.3	87.7	92.8	70.4	123.2	106.4	70.2	83.5	34.1
Clod Heart	0.0	0.0	0.0	0.0	0.0	2.4	5.2	6.6	12.1	5.9	10.3	17.2	3.8	0.0	0.0
Clod Tender	0.0	0.0	0.0	0.0	0.0	8.9	22.3	20.8	24.9	23.1	18.9	16.3	10.2	4.4	6.4
2 Piece Boneless Chuck	227.6	164.2	146.2	142.9	177.9	76.3	3.9	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Chuck Roll	1131.1	1026.4	967.1	1129.4	923.2	852.7	560.5	594.4	655.3	573.4	308.1	170.5	74.2	51.7	16.4
Chuck Roll 0x0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.5	0.5	0.5	0.3	0.0
Oven Ready Rib	332.5	203.9	117.3	117.7	101.3	85.7	42.9	16.2	19.6	44.7	40.2	62.2	49.0	27.8	0.1
Bone-in Lipon Ribeye 17 up	388.8	302.9	242.5	252.8	442.0	520.6	440.8	348.1	317.7	340.1	110.8	217.4	111.2	122.5	155.0
Bone-in Lipon Ribeye 17 dn	43.6	37.1	42.0	42.4	102.3	17.0	24.1	12.1	19.2	60.2	282.6	119.3	224.8	203.6	215.7
Boneless Lipon Ribeye 14 up	237.9	140.7	141.4	116.5	74.3	59.5	48.5	43.2	42.9	25.7	40.7	39.4	49.5	48.6	36.0
Boneless Lipon Ribeye 14 dn	7.6	7.4	4.4	13.0	2.8	3.7	14.6	12.1	11.0	14.3	19.7	2.7	0.5	0.3	0.0
Back Ribs	61.1	85.8	120.7	100.5	80.3	68.6	60.4	44.9	46.3	48.1	53.9	17.7	1.9	2.0	1.2
Short Loin 1x0	369.9	240.9	185.3	173.7	339.2	350.1	308.9	233.4	240.4	199.9	165.1	158.4	164.3	128.0	189.3
Striploin 0x1 13up	411.1	315.5	248.5	276.0	275.9	297.6	277.9	257.3	242.0	295.2	261.2	204.9	236.3	259.0	218.1
Striploin 0x1 13dn	61.0	57.2	27.7	33.5	18.5	10.1	11.5	11.2	4.3	9.9	1.1	0.4	0.5	0.3	0.0
Top Butt 13up	698.4	515.8	454.8	486.5	536.4	524.5	462.0	377.8	356.2	390.9	394.3	358.2	369.6	320.4	360.8
Top Butt 13dn	14.2	17.9	15.9	6.8	2.7	0.6	0.7	0.5	5.5	14.2	7.1	0.5	0.5	0.3	0.0
PSMO Tenderloin	212.7	152.6	115.1	112.4	138.8	160.6	154.2	129.1	115.1	149.3	140.2	115.6	139.8	147.4	136.9
Butt Tenderloin	56.6	43.0	30.2	19.8	56.1	56.5	45.0	36.7	42.2	32.9	17.9	14.2	18.3	16.2	23.6
Boneless Round	255.9	162.4	223.0	249.7	59.2	0.7	0.0	0.0	0.0	38.5	20.0	16.8	8.2	0.0	0.0
Inside Round 1"	957.7	567.7	524.4	460.3	313.1	274.0	113.8	251.9	312.7	387.2	334.0	49.9	2.0	0.1	0.0
Inside Round	886.4	595.6	547.1	544.5	678.1	752.1	725.5	582.9	639.2	722.3	713.1	953.8	850.7	979.1	970.1
Outside Flat	510.4	420.5	308.5	447.9	462.6	528.9	515.0	504.2	494.6	491.9	505.1	565.5	428.2	436.4	399.3
Eye of round	288.2	213.3	170.5	177.8	204.6	216.3	207.7	188.2	174.2	193.3	177.8	143.7	146.2	146.0	161.8
Peeled Knuckle	539.1	399.0	308.1	302.4	377.0	414.7	188.9	134.9	156.8	177.7	91.7	111.7	91.3	91.8	111.0
Gooseneck	0.0	0.0	0.0	0.0	0.0	76.6	99.6	69.9	83.3	162.8	156.3	78.7	4.6	0.2	0.3

Table 2.4.4. Number of AA Loads, Thin Meats, Trim (Fed), and Ground Beef, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Thin Meats</u>															
Chuck Tender	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Briskets 120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bone-in Chuck Shortrib	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flat Iron	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blademeat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bone-in Shortrib	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outside Skirt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inside Skirt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01
Flapmeat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ball Tips	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01
Tri Tips	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02
Flank Steak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pectoral Muscle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lointails	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u>Trim (Fed)</u>															
Fresh 50% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	42.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.8
Fresh 65% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.1
Fresh 75% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Fresh 81% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.8
Fresh 85% Lean Trimmings	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.9
Shankmeat	0.0	0.0	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u>Ground Beef</u>															
Extra Lean Ground Beef	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lean Ground Beef	0.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medium Ground Beef	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Regular Ground Beef	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ground Chuck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Ground Sirloin	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 2.4.5. Coefficient of Variation in Weekly Wholesale Beef Load Volumes, 2005-2019

	AAA			AA				AAA			AA		
	2005-2009	2010-2014	2015-2019	2005-2009	2010-2014	2015-2019		2005-2009	2010-2014	2015-2019	2005-2009	2010-2014	2015-2019
<u>Products</u>							<u>Thin Meats</u>						
Quebec Spec	11.34	1.60	1.42	0.90	1.73	1.43	Chuck Tender	0.41	0.38	0.45			
Semi-Boneless		1.31	0.84		1.31	1.28	Briskets 120	0.26	0.28	0.94			
Short Cut shoulder clod	1.02	0.60	1.02	0.46	0.56	0.86	Bone-in Chuck Shortrib	0.68	0.33	0.38			
Clod Heart		1.10	1.70		1.10	1.71	Flat Iron	0.62	0.71	0.82			
Clod Tender		0.68	1.04		0.68	1.02	Blademeat	0.33	0.36	0.34			
2 Piece Boneless Chuck	6.87	2.91		0.51	2.23		Bone-in Shortrib	0.54	0.69	1.97			
Chuck Roll	0.69	0.32	0.70	0.28	0.48	1.03	Outside Skirt	0.58	0.58	2.99			
Chuck Roll 0x0		1.02	0.64		1.02	0.64	Inside Skirt	1.04	0.34	1.83			16.12
Oven Ready Rib	1.45	2.27	2.52	0.98	1.87	1.99	Flapmeat	0.44	0.50	1.33			
Bone-in Lipon Ribeye 17 up	0.63	0.46	1.66	0.50	0.43	0.89	Ball Tips	0.46	1.00	5.25			16.12
Bone-in Lipon Ribeye 17 dn	0.88	1.49	0.79	4.37	1.52	0.90	Tri Tips	0.44	0.39	1.97			16.12
Boneless Lipon Ribeye 14 up	0.86	1.21	1.24	0.66	0.55	1.06	Flank Steak	0.54	0.38	0.56			
Boneless Lipon Ribeye 14 dn	0.82	1.03	2.91	1.91	0.81	6.85	Pectoral Muscle	0.43	0.42	0.42			
Back Ribs	10.87	2.82	0.99	0.81	0.58	1.80	Loinetails	0.47	0.53	1.43			
Short Loin 1x0	1.00	1.26	0.85	0.63	0.50	0.86	<u>Trim (Fed)</u>						
Striploin 0x1 13up	0.38	0.28	0.35	0.42	0.37	0.55	Fresh 50% Lean Trimmings	0.45	0.29	0.36		16.03	11.66
Striploin 0x1 13dn	0.67	0.58	2.09	0.76	2.58	1.31	Fresh 65% Lean Trimmings	0.39	0.32	0.28		15.97	11.33
Top Butt 13up	0.33	0.30	0.48	0.34	0.35	0.52	Fresh 75% Lean Trimmings	0.57	1.01	3.59		15.97	16.00
Top Butt 13dn	2.88	2.89	6.86	1.19	6.21	12.08	Fresh 81% Lean Trimmings			0.51			8.47
PSMO Tenderloin	0.39	0.31	0.41	0.45	0.40	0.58	Fresh 85% Lean Trimmings	0.37	0.51	0.37		15.97	11.32
Butt Tenderloin	1.34	1.45	0.72	0.74	0.80	0.95	Shankmeat	2.72	0.00	0.54		15.97	
Boneless Round	15.82	2.95	1.27	0.61	2.81	2.08	<u>Ground Beef</u>						
Inside Round 1"	4.09	1.63	1.35	0.57	0.57	2.01	Extra Lean Ground Beef		0.86	0.59		15.13	
Inside Round	0.46	0.46	0.42	0.35	0.27	0.36	Lean Ground Beef		0.46	1.00		15.13	
Outside Flat	0.40	0.48	0.58	0.38	0.33	0.46	Medium Ground Beef		1.64	1.35		15.13	
Eye of round	0.36	0.29	0.33	0.38	0.33	0.50	Regular Ground Beef		1.29	0.62		15.13	
Peeled Knuckle	0.37	0.41	0.42	0.36	0.60	0.67	Ground Chuck		2.81	0.00			16.00
Gooseneck		1.82	1.35		0.96	1.94	Ground Sirloin		2.49	0.57		15.20	

Table 2.4.6 summarizes the relative contribution of individual beef cuts towards the total load counts (across both AAA and AA grades) included in weekly Canadian Boxed Beef Reports. Over time round cuts, trim, and ground beef comprised an increasing portion of total reported loads. In contrast, chuck cuts, brisket cuts, and short plate cuts provided a diminishing share of total reported loads. This trend is particularly problematic for price discovery regarding chuck cuts. For instance, note that the Canadian chuck primal to cutout yield is 29.62% (Canfax, 2018), however, during the last few years less than 10% of the total beef loads captured by in Canadian wholesale beef market reporting came from chuck trades.

Table 2.4.6. Product Groupings Relative Contributions Towards Total Load Counts, 2005-2019

	Chuck	Rib	Loin	Round	Brisket	Short Plate	Flank	Trim	Ground Beef
2005	16%	9%	18%	21%	5%	2%	1%	28%	0%
2006	18%	9%	17%	19%	5%	2%	1%	29%	0%
2007	20%	10%	16%	21%	6%	2%	1%	24%	0%
2008	20%	10%	17%	20%	6%	2%	1%	24%	0%
2009	18%	10%	19%	20%	5%	2%	1%	26%	0%
2010	16%	9%	17%	18%	5%	2%	1%	27%	4%
2011	16%	9%	17%	18%	6%	2%	1%	26%	7%
2012	16%	9%	18%	18%	6%	2%	1%	24%	6%
2013	17%	9%	16%	18%	6%	2%	1%	23%	6%
2014	13%	9%	17%	20%	4%	2%	1%	26%	8%
2015	11%	9%	17%	20%	6%	1%	1%	25%	11%
2016	10%	10%	16%	21%	2%	0%	1%	30%	10%
2017	7%	8%	16%	20%	2%	0%	1%	34%	12%
2018	8%	8%	16%	23%	1%	0%	0%	35%	7%
2019	8%	8%	19%	26%	2%	0%	1%	29%	7%

Notes: Blademeat is included in the rib primal. Ground chuck is included in the chuck primal. Ground sirloin is included in the loin primal. Trim includes fresh 50% lean trimmings, fresh 65% lean trimmings, fresh 75% lean trimmings, fresh 81% lean trimmings, fresh 85% lean trimmings, and shankmeat. Ground beef includes extra lean ground beef, lean ground beef, medium ground beef, and regular ground beef. Load counts for fat and bone were not provided.

Table 2.4.7 through Table 2.4.15, reported on the ensuing pages, summarize how confidentiality guidelines impacted the ability to publish individual items. The first three tables cover AAA products and the next three tables cover AAA grade thin meats, trim, and ground beef and the final three tables cover AA quality products. Each set of three tables consists first of a table showing the percentage of weeks individual items were publishable followed by a table showing the percentage of weeks individual items had no high-low price range which caused and individual price to not be publishable followed by a table with the percentage of weeks individual items were not reported by packers. Across the three tables these percentages sum to 100%. For example, the AAA quality grade “short cut shoulder clod” was publishable 13% of the weeks in 2019 with 87% of the weeks no high-low price range existing but there were no weeks in which the cut was not reported by a packer(s). The reason for no

price range could have been that only one packer reported this individual product for a particular week.

Beginning in July 2010, a dozen cuts were added to the Canadian Boxed Beef Report (Canfax, 2010). This is clearly shown in Table 2.4.9 and Table 2.4.12. For example, before 2010, Quebec Spec, Semi-Boneless, Clod Heart, Clod Tender, and Gooseneck were 100% not reported by packers and then were reported about 50% of the time in 2010 and then being reported almost every week after that. A similar pattern is shown for Extra Lean Ground Beef, Lean Ground Beef, Medium Ground Beef, Regular Ground Beef, Ground Chuck, and Ground Sirloin (Table 2.4.12). It also appears that at least one additional product, the AAA “Chuck Roll 0x0,” was added in 2012.

The Canadian Boxed Beef Report was not published for week ending dates 10/5/12, 10/12/12, 10/19/12, 10/26/12, 6/7/13, 6/14/13, 12/26/14, 4/28/17, 5/5/17, 12/15/17, and 12/22/17. Gaps in reporting were due to not meeting confidentiality requirements. That occurred when staff was on holidays or when trade was so thin that packers did not report. The impact on 2013 and 2014 reporting is clearly shown in Table 2.4.9 and Table 2.4.12 where for many of the products 4% and 8% of the weeks, respectively, were not reported by packers.

Beginning in 2010, a higher percentage of products, thin meats, trim, and ground beef had no high-low price range as shown in Table 2.4.8 and Table 2.4.11. If there was no high-low price range provided for a particular cut, Canfax would not publish the weighted average price, because there was none, in the Canadian Boxed Beef Report. This aligns with the timing of closures of several Canadian FI cattle slaughter plants.^{15,16} We are unaware if the plants that closed were voluntarily reporting wholesale beef trade, however, the past decade has seen a decline in FI cattle slaughter plants available to report. **The general conclusion of the confidentiality analysis is that most individual cuts were no longer publishable in 2018 and 2019 and although some cuts were no longer reported by packers the reason for not publishing an individual price for a particular week was that no high-low price range was reported.**

¹⁵ The Canadian Food Inspection Agency (2021a) provides a listing of historical changes to FI cattle slaughter plants between 2002 and 2020. The XL Foods Ltd. plant in Moose Jaw, Saskatchewan was in operation until 2009. The Lawrence Meat Packing Co. Ltd. plant in Peace River, British Columbia, the Meadows Meat Ltd. plant in Pitt Meadows, British Columbia, and the Winkler Meats Ltd plant in Winkler, Manitoba were in operation until 2010. The Abattoirs Abramov Inc. plant in St-Isidore-de-Laprairie, Quebec was in operation for one year in 2010. The XL Foods Inc. plant in Calgary, Alberta was in operation until 2011. The Levinoff–Colbex plant in St-Cyrville de Wendover, Quebec and the Holly Park Meat Packers Inc. plant in Caledon, Ontario were in operation until 2012.

¹⁶ The XL Foods/Lakeside Packers plant in Brooks, Alberta became JBS Food Canada Inc. in 2014.

Table 2.4.7. Percentage of Weeks AAA Products Publishable, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	0%	0%	0%	0%	0%	46%	79%	96%	88%	75%	71%	52%	2%	0%	0%
Semi-Boneless	0%	0%	0%	0%	0%	15%	65%	52%	84%	21%	12%	2%	0%	0%	0%
Short Cut shoulder clod	71%	60%	0%	0%	4%	48%	98%	98%	96%	96%	100%	98%	92%	58%	13%
Clod Heart	0%	0%	0%	0%	0%	2%	0%	0%	49%	0%	0%	0%	0%	0%	0%
Clod Tender	0%	0%	0%	0%	0%	38%	71%	75%	85%	81%	83%	87%	83%	17%	0%
2 Piece Boneless Chuck	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chuck Roll	96%	67%	18%	16%	71%	100%	100%	98%	96%	100%	96%	88%	71%	8%	0%
Chuck Roll 0x0	0%	0%	0%	0%	0%	0%	0%	19%	96%	100%	96%	85%	0%	0%	0%
Oven Ready Rib	71%	42%	14%	25%	12%	4%	6%	0%	0%	6%	17%	23%	0%	2%	0%
Bone-in Lipon Ribeye 17 up	98%	96%	94%	96%	96%	100%	100%	98%	94%	89%	8%	71%	0%	0%	0%
Bone-in Lipon Ribeye 17 dn	67%	54%	20%	20%	8%	0%	0%	0%	0%	11%	92%	100%	19%	0%	0%
Boneless Lipon Ribeye 14 up	96%	92%	90%	80%	71%	62%	0%	0%	0%	81%	87%	29%	19%	0%	0%
Boneless Lipon Ribeye 14 dn	12%	10%	4%	14%	6%	0%	0%	0%	0%	2%	2%	8%	19%	0%	0%
Back Ribs	0%	0%	0%	0%	0%	6%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Short Loin 1x0	98%	96%	92%	86%	71%	77%	33%	2%	0%	85%	100%	98%	92%	98%	98%
Striploin 0x1 13up	100%	100%	100%	100%	100%	100%	100%	100%	92%	100%	100%	100%	92%	100%	96%
Striploin 0x1 13dn	100%	96%	94%	96%	31%	2%	0%	0%	0%	0%	6%	79%	92%	58%	0%
Top Butt 13up	100%	100%	100%	100%	100%	98%	96%	100%	94%	98%	100%	100%	92%	100%	100%
Top Butt 13dn	29%	54%	53%	84%	85%	94%	94%	98%	94%	30%	73%	100%	92%	58%	0%
PSMO Tenderloin	100%	98%	98%	100%	100%	100%	100%	98%	94%	96%	100%	100%	92%	100%	100%
Butt Tenderloin	96%	98%	90%	90%	44%	23%	0%	6%	6%	81%	88%	94%	87%	100%	96%
Boneless Round	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inside Round 1"	4%	0%	0%	2%	0%	38%	58%	63%	73%	94%	96%	35%	0%	0%	0%
Inside Round	98%	94%	90%	94%	98%	96%	100%	100%	90%	92%	100%	100%	92%	100%	100%
Outside Flat	98%	90%	88%	96%	94%	96%	100%	100%	94%	96%	94%	100%	90%	100%	100%
Eye of round	100%	96%	90%	98%	98%	98%	100%	98%	94%	100%	100%	100%	92%	100%	100%
Peeled Knuckle	100%	98%	88%	98%	96%	98%	15%	0%	0%	0%	0%	0%	0%	0%	0%
Gooseneck	0%	0%	0%	0%	0%	42%	33%	0%	0%	0%	0%	0%	0%	0%	0%

Table 2.4.8. Percentage of Weeks AAA Products Have No High-Low Price Range, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec						4%	21%	4%	8%	25%	29%	48%	90%	56%	4%
Semi-Boneless						33%	29%	42%	12%	79%	88%	98%	92%	96%	85%
Short Cut shoulder clod	29%	40%	100%	100%	96%	52%	2%	2%		4%		2%		42%	87%
Clod Heart						42%	100%	100%	47%	92%	100%	100%	31%		
Clod Tender						12%	27%	25%	12%	19%	17%	13%	10%	69%	79%
2 Piece Boneless Chuck	27%	2%	4%			50%	17%			4%					
Chuck Roll	4%	33%	82%	84%	29%			2%			4%	12%	21%	92%	100%
Chuck Roll 0x0								2%			4%	15%	92%	58%	
Oven Ready Rib	27%	58%	86%	73%	88%	85%	62%	50%	35%	57%	77%	77%	92%	88%	92%
Bone-in Lipon Ribeye 17 up	2%	4%	6%	4%	4%			2%	2%	11%	92%	29%	92%	58%	
Bone-in Lipon Ribeye 17 dn	33%	46%	80%	80%	92%	100%	100%	100%	96%	81%	8%		73%	100%	100%
Boneless Lipon Ribeye 14 up	4%	8%	10%	20%	29%	38%	100%	98%	96%	19%	13%	71%	73%	100%	98%
Boneless Lipon Ribeye 14 dn	88%	90%	96%	86%	94%	100%	100%	100%	96%	91%	98%	92%	73%	58%	
Back Ribs	6%		12%			38%	94%	100%	96%	100%	100%	100%	90%	98%	62%
Short Loin 1x0	2%	4%	8%	14%	29%	23%	67%	98%	96%	15%		2%		2%	2%
Striploin 0x1 13up									4%						4%
Striploin 0x1 13dn	0%	4%	6%	4%	69%	98%	100%	100%	96%	92%	92%	21%			
Top Butt 13up						2%	4%		2%	2%					
Top Butt 13dn	56%	46%	47%	16%	15%	6%	6%		2%	60%	27%				
PSMO Tenderloin		2%	2%					2%	2%	4%					
Butt Tenderloin	4%	2%	10%	10%	56%	77%	100%	83%	90%	19%	12%	6%	6%		4%
Boneless Round	2%					17%				85%	94%	67%	31%		
Inside Round 1"	21%	15%	6%	6%	23%	12%	37%	35%	23%	6%	4%	65%	92%	25%	
Inside Round	2%	6%	10%	6%	2%	4%			6%	8%					
Outside Flat	2%	10%	12%	4%	6%	4%			2%	4%	6%		2%		
Eye of round		4%	10%	2%	2%	2%		2%	2%						
Peeled Knuckle		2%	12%	2%	4%	2%	85%	100%	96%	100%	100%	100%	92%	100%	100%
Gooseneck						8%	67%	100%	90%	92%	100%	100%	92%	25%	

Table 2.4.9. Percentage of Weeks AAA Products Not Reported, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	100%	100%	100%	100%	100%	50%			4%				8%	44%	96%
Semi-Boneless	100%	100%	100%	100%	100%	52%	6%	6%	4%				8%	4%	15%
Short Cut shoulder clod									4%				8%		
Clod Heart	100%	100%	100%	100%	100%	56%			4%	8%			69%	100%	100%
Clod Tender	100%	100%	100%	100%	100%	50%	2%		4%				8%	13%	21%
2 Piece Boneless Chuck	73%	98%	96%	100%	100%	50%	83%	100%	100%	96%	100%	100%	100%	100%	100%
Chuck Roll									4%				8%		
Chuck Roll 0x0	100%	100%	100%	100%	100%	100%	100%	79%	4%				8%	42%	100%
Oven Ready Rib	2%			2%		12%	33%	50%	65%	38%	6%	0%	8%	10%	8%
Bone-in Lipon Ribeye 17 up									4%				8%	42%	100%
Bone-in Lipon Ribeye 17 dn									4%	8%			8%		
Boneless Lipon Ribeye 14 up								2%	4%				8%		2%
Boneless Lipon Ribeye 14 dn									4%	8%			8%	42%	100%
Back Ribs	94%	100%	88%	100%	100%	56%	4%		4%				10%	2%	38%
Short Loin 1x0									4%				8%		
Striploin 0x1 13up									4%				8%		
Striploin 0x1 13dn									4%	8%	2%		8%	42%	100%
Top Butt 13up									4%				8%		
Top Butt 13dn	15%							2%	4%	9%			8%	42%	100%
PSMO Tenderloin									4%				8%		
Butt Tenderloin								10%	4%				8%		
Boneless Round	98%	100%	100%	100%	100%	83%	100%	100%	100%	15%	6%	33%	69%	100%	100%
Inside Round 1"	75%	85%	94%	92%	77%	50%	6%	2%	4%				8%	75%	100%
Inside Round									4%				8%		
Outside Flat									4%				8%		
Eye of round									4%				8%		
Peeled Knuckle									4%				8%		
Gooseneck	100%	100%	100%	100%	100%	50%			10%	8%			8%	75%	100%

Table 2.4.10. Percentage of Weeks AAA Thin Meats, Trim (Fed), and Ground Beef Publishable, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Thin Meats</u>															
Chuck Tender	100%	98%	100%	100%	98%	94%	98%	98%	96%	96%	92%	100%	88%	100%	100%
Briskets 120	100%	100%	98%	100%	98%	100%	100%	100%	96%	98%	100%	98%	87%	79%	100%
Bone-in Chuck Shortrib	98%	90%	29%	78%	92%	100%	98%	100%	96%	96%	90%	98%	92%	98%	100%
Flat Iron	98%	98%	98%	88%	23%	0%	2%	0%	0%	68%	50%	83%	88%	98%	98%
Blademeat	100%	96%	100%	100%	96%	96%	100%	100%	94%	70%	100%	96%	90%	98%	94%
Bone-in Shortrib	92%	96%	78%	96%	92%	81%	65%	58%	40%	40%	27%	13%	6%	4%	0%
Outside Skirt	100%	98%	96%	94%	88%	90%	96%	83%	83%	42%	8%	0%	0%	0%	0%
Inside Skirt	100%	98%	98%	100%	100%	100%	100%	92%	96%	51%	10%	2%	0%	0%	0%
Flapmeat	100%	100%	96%	98%	98%	98%	100%	100%	90%	94%	69%	10%	0%	0%	0%
Ball Tips	92%	81%	84%	78%	71%	94%	21%	0%	0%	0%	0%	0%	0%	0%	0%
Tri Tips	100%	100%	98%	100%	100%	100%	98%	98%	96%	96%	69%	12%	0%	0%	0%
Flank Steak	100%	98%	100%	100%	94%	100%	98%	100%	96%	98%	100%	98%	92%	98%	100%
Pectoral Muscle	98%	98%	92%	96%	27%	0%	0%	0%	0%	45%	100%	98%	90%	94%	79%
Loin tails	71%	77%	82%	94%	27%	0%	0%	0%	0%	38%	63%	27%	0%	2%	0%
<u>Trim (Fed)</u>															
Fresh 50% Lean Trimmings	100%	98%	82%	100%	98%	98%	100%	81%	94%	100%	100%	98%	92%	96%	98%
Fresh 65% Lean Trimmings	100%	100%	96%	100%	98%	98%	100%	96%	96%	98%	100%	100%	92%	96%	100%
Fresh 75% Lean Trimmings	92%	96%	86%	98%	96%	88%	38%	19%	87%	72%	88%	79%	8%	8%	2%
Fresh 81% Lean Trimmings	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fresh 85% Lean Trimmings	88%	98%	100%	100%	100%	96%	98%	94%	88%	87%	100%	96%	92%	96%	100%
Shankmeat	10%	12%	35%	0%	81%	96%	98%	94%	88%	87%	100%	96%	92%	96%	75%
<u>Ground Beef</u>															
Extra Lean Ground Beef	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lean Ground Beef	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Ground Beef	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Regular Ground Beef	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ground Chuck	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ground Sirloin	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 2.4.11. Percentage of Weeks AAA Thin Meats, Trim (Fed), and Ground Beef Have No High-Low Price Range, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Thin Meats</u>															
Chuck Tender		2%			2%	6%	2%	2%		4%	8%		4%		
Briskets 120			2%		2%					2%		2%	6%	21%	
Bone-in Chuck Shortrib	2%	10%	71%	22%	8%		2%			4%	10%	2%		2%	
Flat Iron	2%	2%	2%	12%	77%	100%	98%	100%	96%	32%	50%	17%	4%	2%	2%
Blademeat		4%			4%	4%			2%	30%		4%	2%	2%	6%
Bone-in Shortrib	8%	4%	22%	4%	8%	19%	35%	42%	56%	60%	73%	87%	87%	96%	100%
Outside Skirt		2%	4%	6%	12%	10%	4%	17%	13%	58%	92%	100%	92%	100%	100%
Inside Skirt		2%	2%					8%		49%	90%	98%	92%	100%	100%
Flapmeat			4%	2%	2%	2%			6%	6%	31%	90%	92%	100%	100%
Ball Tips	8%	19%	16%	22%	29%	6%	77%	100%	96%	100%	100%	100%	92%	100%	100%
Tri Tips			2%				2%	2%		4%	31%	88%	90%	100%	100%
Flank Steak		2%			6%		2%			2%		2%		2%	
Pectoral Muscle	2%	2%	8%	4%	73%	100%	100%	100%	96%	55%		2%	2%	6%	21%
Loinetails	29%	23%	18%	6%	73%	100%	100%	100%	96%	62%	37%	73%	92%	85%	83%
<u>Trim (Fed)</u>															
Fresh 50% Lean Trimmings		2%	18%		2%	2%		19%	2%			2%		4%	2%
Fresh 65% Lean Trimmings			4%		2%	2%		4%		2%				4%	
Fresh 75% Lean Trimmings	8%	4%	14%	2%	4%	12%	62%	81%	10%	28%	12%	21%	85%	92%	98%
Fresh 81% Lean Trimmings													83%	96%	96%
Fresh 85% Lean Trimmings	12%	2%				4%	2%	6%	8%	13%		4%		4%	
Shankmeat	90%	88%	65%	100%	19%	4%	2%	6%	8%	13%		4%		4%	25%
<u>Ground Beef</u>															
Extra Lean Ground Beef						50%	100%	98%	96%	100%	100%	100%	92%	100%	100%
Lean Ground Beef						50%	100%	98%	96%	100%	100%	100%	92%	98%	100%
Medium Ground Beef						50%	79%	71%	92%	100%	100%	100%	92%	65%	100%
Regular Ground Beef						50%	60%	40%	94%	98%	100%	100%	92%	100%	100%
Ground Chuck							2%	21%	96%	100%	100%	100%	92%	100%	100%
Ground Sirloin						40%	23%	21%	96%	96%	100%	100%	90%	98%	100%

Table 2.4.12. Percentage of Weeks AAA Thin Meats, Trim (Fed), and Ground Beef Not Reported, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Thin Meats</u>															
Chuck Tender									4%				8%		
Briskets 120									4%				8%		
Bone-in Chuck Shortrib									4%				8%		
Flat Iron									4%				8%		
Blademeat									4%				8%		
Bone-in Shortrib									4%				8%		
Outside Skirt									4%				8%		
Inside Skirt									4%				8%		
Flapmeat									4%				8%		
Ball Tips							2%		4%				8%		
Tri Tips									4%				10%		
Flank Steak									4%				8%		
Pectoral Muscle									4%				8%		
Lointails									4%				8%	13%	17%
<u>Trim (Fed)</u>															
Fresh 50% Lean Trimmings									4%				8%		
Fresh 65% Lean Trimmings									4%				8%		
Fresh 75% Lean Trimmings									4%				8%		
Fresh 81% Lean Trimmings	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	17%	4%	4%
Fresh 85% Lean Trimmings									4%				8%		
Shankmeat									4%				8%		
<u>Ground Beef</u>															
Extra Lean Ground Beef	100%	100%	100%	100%	100%	50%		2%	4%				8%		
Lean Ground Beef	100%	100%	100%	100%	100%	50%		2%	4%				8%	2%	
Medium Ground Beef	100%	100%	100%	100%	100%	50%	21%	29%	8%				8%	35%	
Regular Ground Beef	100%	100%	100%	100%	100%	50%	40%	60%	6%	2%			8%		
Ground Chuck	100%	100%	100%	100%	100%	100%	98%	79%	4%				8%		
Ground Sirloin	100%	100%	100%	100%	100%	60%	77%	79%	4%	4%			10%	2%	

Table 2.4.13. Percentage of Weeks AA Products Publishable, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	87%	88%	94%	82%	81%	94%	79%	96%	88%	75%	71%	52%	2%	0%	0%
Semi-Boneless	0%	0%	0%	0%	0%	15%	65%	52%	84%	21%	12%	2%	0%	0%	0%
Short Cut shoulder clod	100%	98%	98%	100%	96%	90%	100%	100%	96%	96%	100%	98%	92%	85%	17%
Clod Heart	0%	0%	0%	0%	0%	2%	0%	0%	49%	0%	0%	0%	0%	0%	0%
Clod Tender	0%	0%	0%	0%	0%	38%	71%	73%	85%	81%	83%	87%	83%	17%	0%
2 Piece Boneless Chuck	100%	98%	86%	82%	85%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chuck Roll	100%	100%	100%	100%	100%	100%	100%	100%	96%	100%	96%	88%	69%	6%	0%
Chuck Roll 0x0	0%	0%	0%	0%	0%	0%	0%	21%	96%	100%	96%	85%	0%	0%	0%
Oven Ready Rib	98%	90%	84%	86%	50%	31%	15%	2%	0%	8%	38%	13%	12%	0%	0%
Bone-in Lipon Ribeye 17 up	100%	100%	98%	100%	100%	100%	100%	100%	96%	85%	8%	42%	4%	0%	0%
Bone-in Lipon Ribeye 17 dn	90%	90%	98%	90%	27%	0%	4%	2%	0%	11%	90%	96%	92%	96%	98%
Boneless Lipon Ribeye 14 up	96%	98%	100%	100%	92%	98%	85%	100%	96%	94%	90%	54%	92%	100%	98%
Boneless Lipon Ribeye 14 dn	17%	25%	4%	29%	69%	58%	0%	0%	2%	0%	2%	31%	90%	58%	0%
Back Ribs	81%	98%	100%	100%	56%	52%	4%	0%	0%	8%	0%	0%	0%	0%	0%
Short Loin 1x0	100%	98%	90%	100%	98%	100%	100%	100%	96%	96%	100%	96%	92%	98%	100%
Striploin 0x1 13up	100%	98%	100%	100%	100%	98%	100%	100%	96%	100%	100%	96%	92%	98%	100%
Striploin 0x1 13dn	98%	83%	94%	96%	29%	0%	0%	0%	8%	9%	33%	54%	79%	56%	0%
Top Butt 13up	100%	100%	100%	100%	98%	98%	96%	100%	96%	100%	100%	96%	92%	98%	100%
Top Butt 13dn	54%	83%	69%	84%	23%	10%	37%	98%	73%	74%	98%	96%	92%	56%	0%
PSMO Tenderloin	100%	100%	100%	100%	98%	100%	100%	100%	96%	100%	100%	96%	92%	100%	98%
Butt Tenderloin	100%	100%	96%	98%	92%	100%	100%	100%	96%	96%	92%	10%	46%	90%	92%
Boneless Round	100%	90%	96%	98%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inside Round 1"	96%	83%	90%	98%	85%	87%	58%	65%	73%	100%	96%	35%	0%	0%	0%
Inside Round	100%	96%	100%	98%	96%	98%	100%	100%	96%	96%	100%	96%	90%	100%	100%
Outside Flat	100%	98%	98%	98%	96%	100%	100%	100%	96%	100%	100%	96%	92%	100%	100%
Eye of round	100%	100%	100%	100%	98%	100%	100%	100%	96%	100%	100%	96%	90%	100%	100%
Peeled Knuckle	100%	100%	92%	100%	98%	100%	31%	0%	0%	0%	0%	2%	2%	0%	0%
Gooseneck	0%	0%	0%	0%	0%	42%	33%	0%	0%	0%	0%	2%	0%	0%	0%

Table 2.4.14. Percentage of Weeks AA Products Have No High-Low Price Range, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec	13%	12%	6%	18%	19%	6%	21%	4%	8%	25%	29%	48%	90%	56%	
Semi-Boneless						33%	29%	42%	12%	79%	88%	98%	92%	58%	
Short Cut shoulder clod		2%	2%		4%	10%				4%		2%		15%	83%
Clod Heart						42%	100%	100%	47%	92%	100%	100%	31%		
Clod Tender						12%	27%	27%	12%	19%	17%	13%	10%	77%	94%
2 Piece Boneless Chuck		2%	14%	18%	15%	100%	17%			4%					
Chuck Roll											4%	12%	23%	94%	100%
Chuck Roll 0x0											4%	15%	92%	58%	
Oven Ready Rib	2%	10%	16%	14%	50%	63%	63%	54%	37%	68%	42%	77%	52%	17%	4%
Bone-in Lipon Ribeye 17 up			2%							15%	92%	58%	88%	100%	100%
Bone-in Lipon Ribeye 17 dn	10%	10%	2%	10%	73%	100%	96%	98%	96%	81%	10%	4%		4%	2%
Boneless Lipon Ribeye 14 up	4%	2%			8%	2%	15%			6%	10%	46%			2%
Boneless Lipon Ribeye 14 dn	62%	75%	96%	71%	31%	42%	100%	100%	94%	92%	98%	69%	2%		
Back Ribs	19%	2%			44%	48%	96%	100%	96%	92%	100%	100%	92%	98%	96%
Short Loin 1x0		2%	10%		2%					4%		4%		2%	
Striploin 0x1 13up		2%				2%						4%		2%	
Striploin 0x1 13dn	2%	17%	6%	4%	71%	100%	100%	100%	88%	83%	65%	46%	13%	2%	
Top Butt 13up					2%	2%	4%					4%		2%	
Top Butt 13dn	40%	17%	31%	16%	77%	90%	63%		23%	17%	2%	4%		2%	
PSMO Tenderloin					2%							4%			2%
Butt Tenderloin			4%	2%	6%				4%	8%	90%	46%	10%	8%	
Boneless Round		10%	4%	2%	73%	67%				85%	94%	67%	31%		
Inside Round 1"	4%	17%	10%	2%	15%	13%	37%	35%	23%		4%	65%	92%	25%	
Inside Round		4%		2%	4%	2%				4%		4%	2%		
Outside Flat		2%	2%	2%	4%							4%			
Eye of round					2%							4%	2%		
Peeled Knuckle			8%		2%		69%	100%	96%	100%	100%	98%	90%	100%	100%
Gooseneck						8%	67%	100%	90%	92%	100%	98%	92%	35%	52%

Table 2.4.15. Percentage of Weeks AA Products Not Reported, 2005-2019

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Quebec Spec									4%				8%	44%	100%
Semi-Boneless	100%	100%	100%	100%	100%	52%	6%	6%	4%				8%	42%	100%
Short Cut shoulder clod									4%				8%		
Clod Heart	100%	100%	100%	100%	100%	56%			4%	8%			69%	100%	100%
Clod Tender	100%	100%	100%	100%	100%	50%	2%		4%				8%	6%	6%
2 Piece Boneless Chuck							83%	100%	100%	96%	100%	100%	100%	100%	100%
Chuck Roll									4%				8%		
Chuck Roll 0x0	100%	100%	100%	100%	100%	100%	100%	79%	4%				8%	42%	100%
Oven Ready Rib						6%	21%	44%	63%	25%	19%	10%	37%	83%	96%
Bone-in Lipon Ribeye 17 up									4%				8%		
Bone-in Lipon Ribeye 17 dn									4%	8%			8%		
Boneless Lipon Ribeye 14 up									4%				8%		
Boneless Lipon Ribeye 14 dn	21%								4%	8%			8%	42%	100%
Back Ribs									4%				8%	2%	4%
Short Loin 1x0									4%				8%		
Striploin 0x1 13up									4%				8%		
Striploin 0x1 13dn									4%	8%	2%		8%	42%	100%
Top Butt 13up									4%				8%		
Top Butt 13dn	6%							2%	4%	9%			8%	42%	100%
PSMO Tenderloin									4%				8%		
Butt Tenderloin					2%				4%				8%		
Boneless Round						33%	100%	100%	100%	15%	6%	33%	69%	100%	100%
Inside Round 1"							6%		4%				8%	75%	100%
Inside Round									4%				8%		
Outside Flat									4%				8%		
Eye of round									4%				8%		
Peeled Knuckle									4%				8%		
Gooseneck	100%	100%	100%	100%	100%	50%			10%	8%			8%	65%	48%

2.5. CORRELATION OF CANADIAN AND U.S. BOXED BEEF PRICES

The weekly Canadian Boxed Beef Report is structured to compare Canadian prices with U.S. prices. U.S. prices are converted to Canadian dollars using the weekly exchange rate. Weekly carcass cutouts are shown in Figure 2.5.1 for the 2006-2019 period. The first panel contains the Canadian AAA cutout compared to the U.S. Choice cutout. The second panel contains the Canadian AA cutout compared to the U.S. Select cutout. The price series trend together with correlation coefficients of 0.989 and 0.990, respectively. Appendix C contains the equivalent figures for the seven primals. The chuck, rib, loin, and round primals have separate Canadian AAA and Canadian AA values while the brisket, short plate, and flank primal values are equivalent for Canadian AAA and Canadian AA as shown in the Canadian Boxed Beef Report.

While carcass cutouts and most primals have high correlation coefficients over the 2006-2019 period, individual years are lower with some being much lower. From 2006 to 2010 the Canadian boxed beef cutout was at a premium to the U.S. boxed beef cutout. After a review was conducted it was found that the Canadian boxed beef model was placing too much weight on higher priced middle meats, thereby, inflating the cutout value by approximately \$0.10 per pound. Annual correlation coefficients generally improved after a revised model was implemented in 2010 and peaked in 2016 and 2017. Yearly correlations between Canadian and U.S. carcass cutouts and primals generally declined from 2017 to 2018 and remained at these lower levels in 2019 (Table 2.5.1). This aligns with lower Canadian reporting levels in 2018 and 2019.

Values that are more stable, or follow some pattern, are more easily predicted than values that have higher variance. The coefficient of variation allows for measuring price dispersion while accounting for the absolute level of prices. A four-week rolling average coefficient of variation for the AAA and AA cutouts is presented in Figure 2.5.2. Data from January 2011 to March 2020 were used to visually observe price dispersion of each series. Trend lines indicate both AAA and AA carcass cutouts have higher price variability over time. If the increased variability is justified by market conditions, then it is appropriate that the coefficient of variation has increased. If instead, the increased variability is due to noise being introduced into the price series due to the reporting, collection, summarizing, and publishing of the data then the higher coefficient of variation is a concern because it is associated with data collection and reporting and not reflective of actual market behavior.

Figure 2.5.1. Canadian and U.S. Carcass Cutouts, Canadian Dollars, 2006-2019

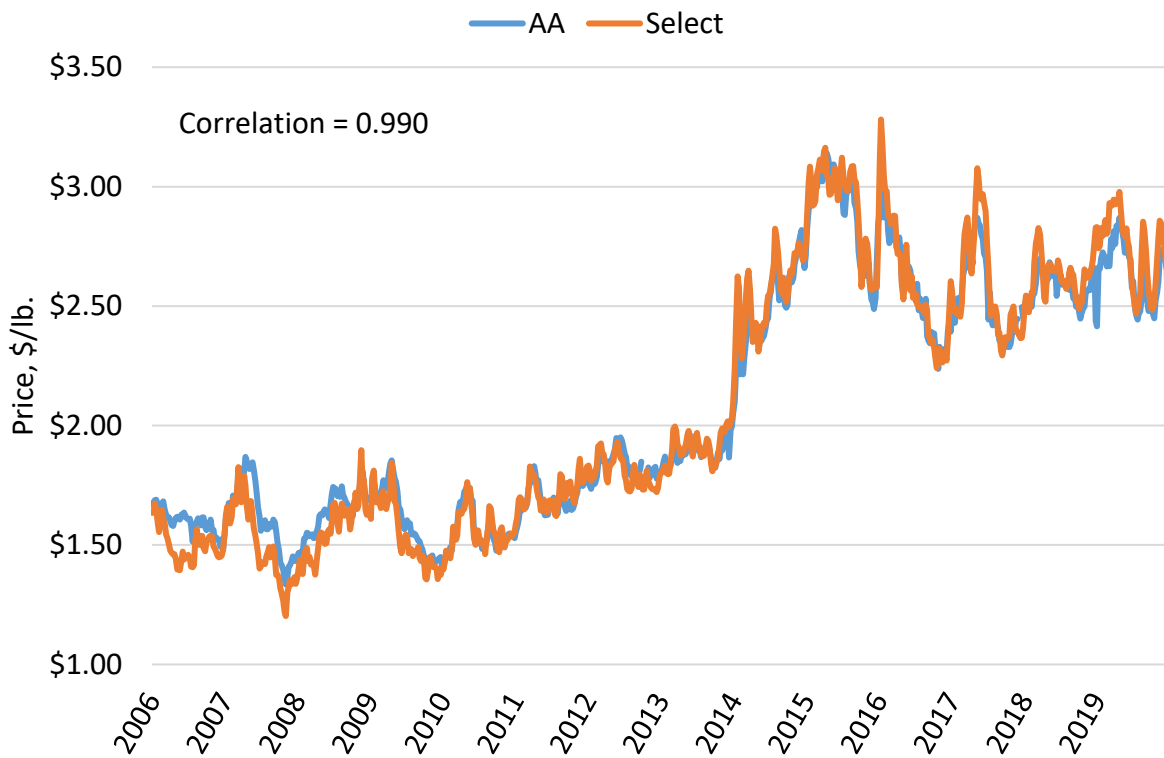
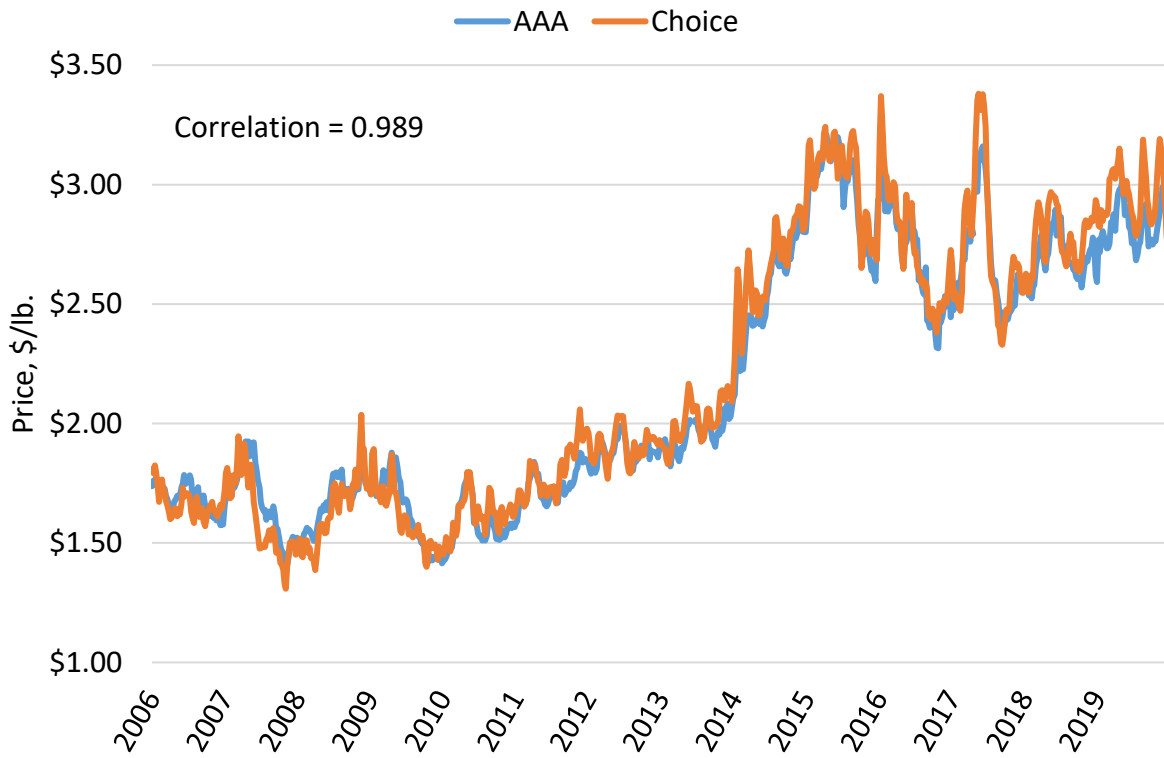
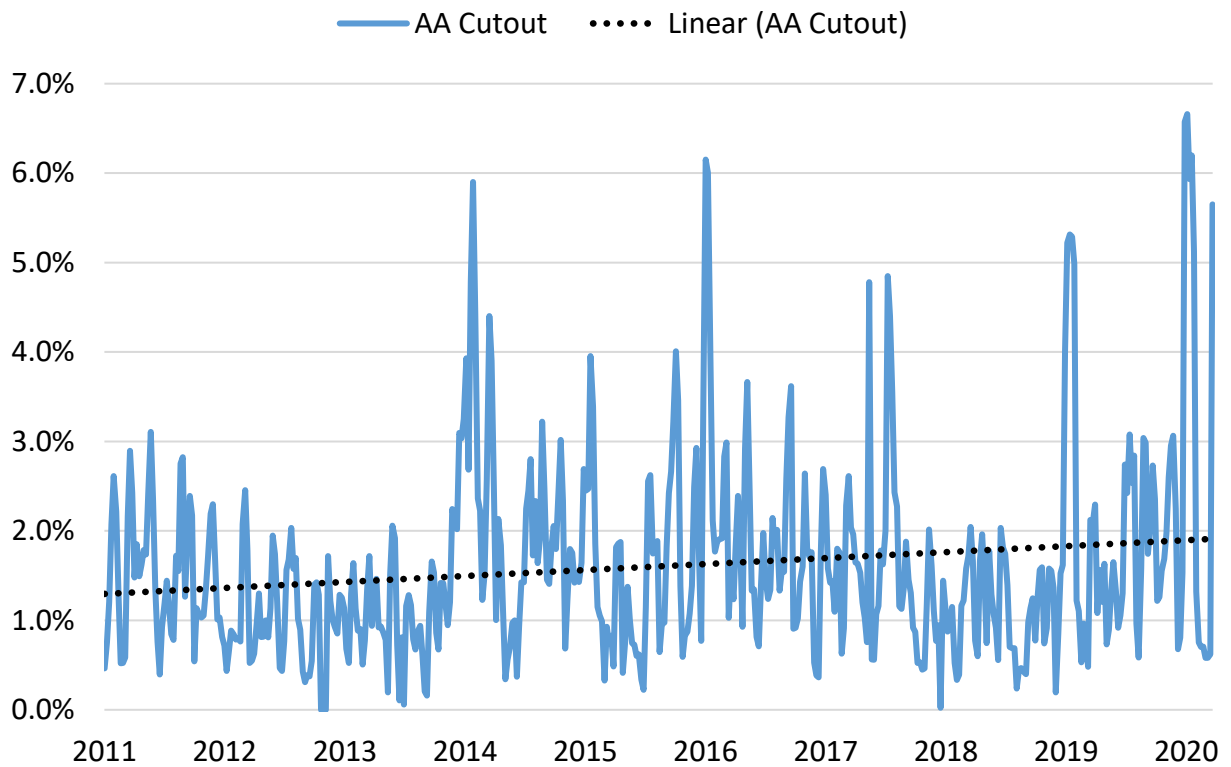
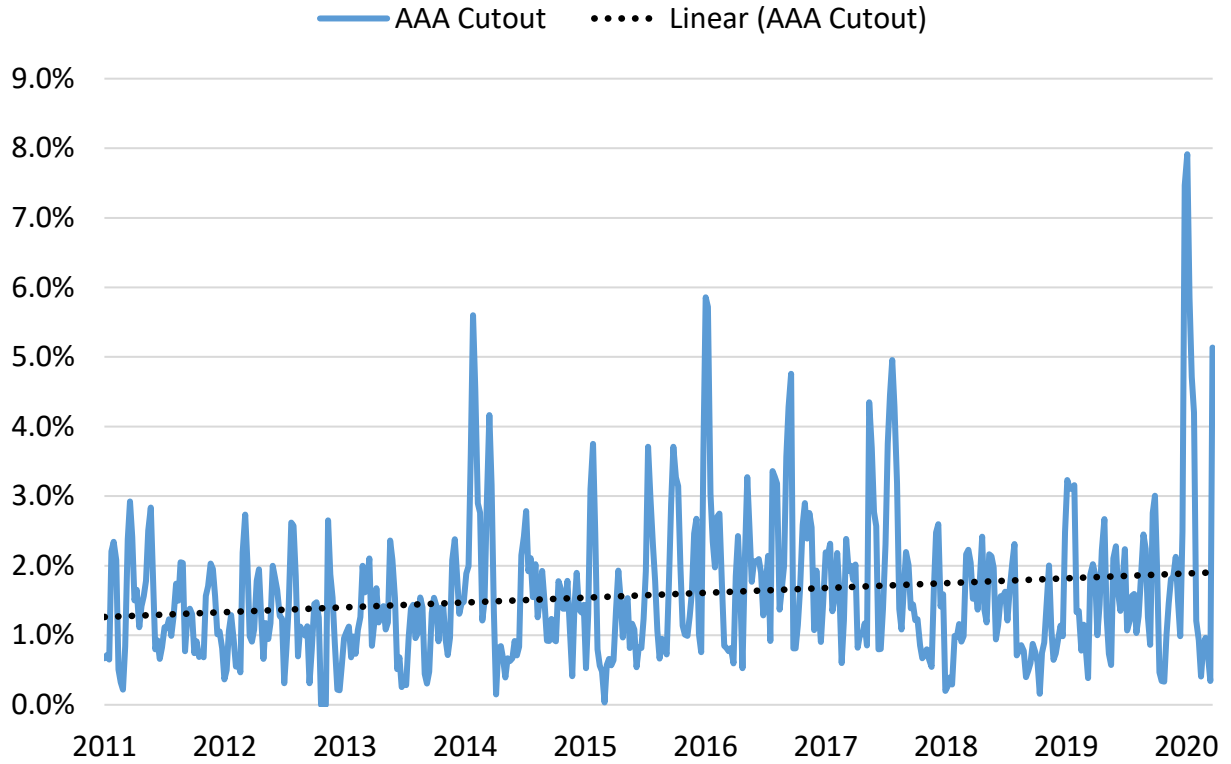


Table 2.5.1. Correlation Coefficients between Canadian and U.S. Carcass Cutout Prices and Primals, 2006-2019

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2006-2019
<u>Carcass Cutouts</u>															
AAA Choice	0.57	0.84	0.91	0.86	0.86	0.86	0.75	0.80	0.93	0.90	0.93	0.94	0.73	0.72	0.989
AA Select	0.61	0.90	0.92	0.95	0.91	0.81	0.62	0.79	0.88	0.92	0.95	0.94	0.59	0.80	0.990
<u>AAA Choice</u>															
Chuck	0.92	0.85	0.95	0.91	0.50	0.87	0.72	0.72	0.89	0.89	0.92	0.76	0.24	0.59	0.987
Rib	0.37	0.58	0.85	0.59	0.51	0.79	0.70	0.83	0.90	0.67	0.81	0.82	0.83	0.70	0.968
Loin	0.86	0.77	0.68	0.94	0.69	0.81	0.90	0.83	0.87	0.93	0.96	0.94	0.88	0.80	0.894
Round	0.91	0.93	0.94	0.96	0.58	0.82	0.60	0.81	0.86	0.88	0.87	0.79	0.50	0.66	0.983
Brisket	-0.14	-0.26	0.85	0.88	-0.17	0.95	0.70	0.72	0.97	0.96	0.85	0.84	0.43	0.32	0.976
Short Plate	0.87	0.88	0.96	0.95	0.48	0.81	0.21	0.58	0.91	0.97	0.98	0.85	0.81	0.86	0.973
Flank	0.71	0.89	0.78	0.62	0.34	0.91	0.86	0.85	0.95	0.96	0.92	0.86	0.81	0.66	0.368
<u>AA/A Select</u>															
Chuck	0.92	0.91	0.96	0.92	0.59	0.85	0.68	0.69	0.87	0.91	0.93	0.76	0.23	0.63	0.986
Rib	0.49	0.74	0.84	0.84	0.80	0.81	0.38	0.71	0.84	0.65	0.71	0.67	0.69	0.85	0.973
Loin	0.44	0.85	0.80	0.97	0.78	0.85	0.89	0.90	0.80	0.93	0.96	0.94	0.80	0.83	0.870
Round	0.96	0.95	0.95	0.97	0.70	0.83	0.72	0.88	0.84	0.88	0.95	0.88	0.58	0.72	0.988
Brisket	-0.16	-0.27	0.86	0.87	-0.18	0.92	0.68	0.66	0.96	0.96	0.86	0.84	0.41	0.45	0.976
Short Plate	0.87	0.90	0.96	0.96	0.53	0.82	0.25	0.62	0.91	0.96	0.98	0.85	0.81	0.86	0.973
Flank	0.81	0.96	0.79	0.54	0.42	0.91	0.79	0.76	0.93	0.96	0.90	0.89	0.81	0.73	0.345

Figure 2.5.2. Weekly Rolling 4-Week Coefficient of Variation for Canadian Carcass Cutouts, January 2011 to March 2020



Comparing price instability coefficients between markets has been proposed as an alternative to price correlation coefficients or cointegration models for measuring market integration (Honfoga et al., 2018). This approach is proposed as a step towards advancing spatial price analysis when price time series are relatively short, not uniform and missing data exist. As was shown in Tables 10, 13, and 16 several of the products, thin meats, and trim were not reported in some weeks. With a revised boxed beef model being implemented in 2010 and cuts being added we conduct the analysis on the data beginning in 2011 through week ending March 20, 2020. The price instability coefficient for a given market expresses the average price deviation from the trend in percentage of the mean price, such that:

$$I(\%) = 100 * \left(\frac{\sqrt{\sum(\dot{Y}_i - Y_i)^2}}{T * \bar{Y}} \right)$$

where \dot{Y}_i is the predicted price on the trend line ($\dot{Y}_i = a + bt$), t is the time or market day number; Y_i is the actual price on market date t , and \bar{Y} is the average price over T number of market days or periods (weeks in this study) (Heidingsfield et al., 1974). This provides a unit free measure of relative dispersion.

The price spread between two integrated markets is assumed to be approximately constant over time (Delgado, 1986). If the price spread is not constant, the price instability coefficient will be high and market integration would be low. In other words, the greater is the difference in price instability coefficients, the less likely will price movements be parallel and the less will the markets be integrated.

Table 2.5.2 shows differences in price instability coefficients between comparable pairs of Canadian and U.S. carcass cutouts, primals, products, thin meats, and trim. For example, Canadian AAA “Striploin 0x1 13 up” is comparable to U.S. Choice “Loin, strip, bnls, 0x1 (180 3).” The differences are sorted in ascending order for ease in interpretation. The lower the difference between the price instability coefficients of two items, the greater the integration among prices from these items. Low volume markets may not be integrated with higher volume markets because of problems associated with “thin” markets (Tomek, 1980). This explains why market integration is the lowest for Canadian AAA “Gooseneck” and U.S. Choice “Round, bottom gooseneck (170 1)” within AAA and Choice products as Canadian AAA “Gooseneck” had only 361 weeks of the 482 weeks reported. Also, with respect to Canadian AAA “Striploin 0x1 13 up” and Canadian AAA “Striploin 0x1 13 dn” the former had 12 weeks not reported whereas the latter had 103 weeks not reported so the integration with the comparable U.S. product was lower for AAA “Striploin 0x1 13 dn.” However, for products like Canadian AAA “PSMO Tenderloin” and Canadian AAA “Butt Tenderloin” where only few weeks were not reported, Canadian AAA “Butt Tenderloin” is more integrated with the comparable U.S. product.

This measure of market integration, provides support for using some U.S. items as an estimate of the value of Canadian items. For example, U.S. Choice “Loin, ball-tip, bnls, heavy (185B 1)” converted to Canadian dollars is a better estimate of Canadian AAA and AA “Ball Tips” than U.S. Choice and Select “121C 4 Plate, Outside Skirt” is of Canadian “Outside Skirt.”

Table 2.5.2. Differences in Price Instability Coefficients between Canadian and U.S. Cutouts, Primals Products, Thin Meats, and Trim

	AAA Choice		AA Select		AA Select
Carcass Cutout (470, 482)	0.395	Carcass Cutout (470, 482)	0.493		
<u>Primals</u>		<u>Primals</u>		<u>Products (continued)</u>	
Loin (470, 482)	0.097	Chuck (470, 482)	0.061	Chuck Roll (470, 482)	1.102
Brisket (470, 482)	0.220	Brisket (470, 482)	0.118	Gooseneck (402, 481)	3.089
Rib (470, 482)	0.238	Loin (470, 482)	0.305	Semi-Boneless (379, 481)	3.339
Chuck (470, 482)	0.852	Round (470, 482)	0.410	Boneless Round (340, 69)	4.135
Round (470, 482)	1.531	Rib (470, 482)	0.708		
Short Plate (470, 482)	1.590	Flank (469, 482)	1.857		
Flank (470, 482)	2.155	Short Plate (470, 482)	2.121		
<u>Products</u>		<u>Products</u>		<u>Thin Meats (AAA/AA)</u>	
Striploin 0x1 13 up (470, 482)	0.034	Short Loin 1x0 (470, 482)	0.013	Ball Tips (469, 482)	0.086
Butt Tenderloin (465, 482)	0.070	Short Cut Shoulder Clod (470, 482)	0.074	Flank Steak (470, 482)	0.154
Short Cut Shoulder Clod (464, 482)	0.121	Clod Tender (462, 480)	0.081	Tri tips (470, 482)	0.211
Bone-in Lipon Ribeye 17 dn (465, 482)	0.122	Butt Tenderloin (470, 482)	0.110	Flapmeat (470, 482)	0.266
Top Butt 13 up (470, 482)	0.139	Striploin 0x1 13 up (470, 480)	0.130	Briskets 120 (470, 482)	0.296
Peeled Knuckle (470, 482)	0.296	Inside Round (470, 481)	0.133	Pectoral Muscle (469, 482)	0.336
Short Loin 1x0 (470, 482)	0.303	PSMO Tenderloin (470, 482)	0.135	Chuck Tender (470, 482)	0.340
Boneless Lipon Ribeye 14 up (468, 482)	0.335	Boneless Lipon Ribeye 14 up (470, 482)	0.163	Blademeat (470, 482)	0.400
Chuck Roll (470, 482)	0.343	Bone-in Lipon Ribeye 17 up (469, 482)	0.356	Inside Skirt (470, 482)	0.495
PSMO Tenderloin (470, 482)	0.356	Top Butt 13 up (470, 482)	0.437	Bone-in Shortrib (470, 482)	0.964
Striploin 0x1 13 dn (379, 482)	0.466	Bone-in Lipon Ribeye 17 dn (466, 482)	0.445	Bone-in Chuck Shortrib (470, 481)	1.318
Top Butt 13 dn (378, 482)	0.506	Top Butt 13 dn (378, 482)	0.514	Outside Skirt (470, 482)	1.875
Boneless Lipon Ribeye 14 dn (379, 482)	0.584	Eye of Round (470, 482)	0.653		
Eye of Round (470, 482)	0.599	Peeled Knuckle (470, 482)	0.661	<u>Trim (AAA & AA) (Fed)</u>	
Oven Ready Rib (362, 53)	0.742	Outside Flat (470, 482)	0.665	Fresh 85% Lean Trimmings (469, 481)	0.253
Bone-in Lipon Ribeye 17 up (383, 482)	0.798	Clod Heart (317, 475)	0.776	Ground Sirloin (392, 468)	1.341
Inside Round (470, 482)	0.886	Striploin 0x1 13 dn (376, 480)	0.780	75% Trim (469, 480)	4.039
Outside Flat (470, 482)	0.988	Boneless Lipon Ribeye 14 dn (379, 482)	0.810	Fresh 50% Lean Trimmings (470, 482)	6.909
Gooseneck (361, 481)	3.714	Inside Round 1" (363, 482)	0.961		

CHAPTER 3: LIVESTOCK MANDATORY REPORTING IN THE UNITED STATES

3.1. HISTORY OF LIVESTOCK MANDATORY REPORTING

The United States LMR Act of 1999 was enacted in 2000 and reporting was implemented in April 2001. The LMR Act was the most substantial meat and livestock market information collection and reporting effort ever undertaken in the United States. Under LMR qualifying packers are required to report transaction prices and volume information on wholesale boxed beef, fed cattle, wholesale lamb, market sheep, wholesale pork (added in 2012), and market hogs to the United States Department of Agriculture (USDA). The Agricultural Marketing Service (AMS) manages data collection and compiles and publishes market information in morning and afternoon daily reports as well as weekly and other summary reports.

The LMR Act occurred because of industry appeals during the 1990s to improve market transparency. Prior to the Act, AMS market reporters collected livestock and wholesale meat market information voluntarily mostly through phone visits with meat packers and livestock producers.¹⁷ Concerns about voluntary reporting included the information not being representative of the market, selective reporting, and almost exclusive focus on negotiated cash market reporting at a time when contracts and marketing agreements were becoming common. **An important charge of LMR was to collect data on non-cash types of transactions to provide market information on private contract livestock and meat trade. This has become an ever more important component of LMR as use of contracts and marketing agreements has expanded substantially in the livestock and meat sectors over the last 20 years.**

During debate about the LMR Act, major producer associations including the National Cattlemen’s Beef Association, National Pork Producers Council, and American Farm Bureau Federation publicly supported the legislation. The producer associations cited a need for more market transparency especially relative to alternative marketing arrangements that were evolving beyond negotiated cash trade. In contrast, the American Meat Institute, representing the beef packing industry, were proponents of the Act citing added costs associated with compliance and they perceived little benefits likely to accrue from LMR. Packers generally favored price reporting, but felt the existing voluntary reporting system was sufficient.

Table 3.1.1 summarizes a timeline of noteworthy LMR authorization and related events. Approximately every five years LMR is subject to reauthorization by Congress. Several events in the timeline are worth highlighting:

1. As discussed further below, a few months after LRM launched the guidelines originally used to maintain confidentiality of reported market information were modified. The original 3/60 guidelines were overly restrictive and resulted in considerable nonreportable market information. Basically, the data were being provided by the

¹⁷ Some USDA AMS livestock and meat market information is still collected by marketing reporters in a similar voluntary fashion today on items not covered under LMR such as variety meats, offal, hides, and several others.

packers to the USDA, but the adopted confidentiality guidelines precluded USDA from publishing summary market information.

2. Despite beef packers being proponents of LMR prior to enactment, they voluntarily continued to supply market information to AMS during the 2005 lapse in the LMR Act. Though the lapse only lasted a few days before reauthorization, packers were not required by law to report transactions to USDA during the lapse. They did so anyway, which enabled AMS to continue to publish most market reports. This suggests despite early resistance to LMR by packers, by 2005, the main costs of compliance were likely fully incurred and marginal costs of continuing to report daily market information to USDA were minimal.
3. In 2013, when the U.S. federal government shut down due to the federal budget not being approved, USDA AMS was shut down as well and market reporting paused. A study reviewing LMR prior to reauthorization conducted in 2016 concluded discontinuance of USDA market reporting during the 16-day 2013 federal government shutdown was immensely disruptive to livestock markets and associated participants (Parcell, Tonsor, and Schroeder, 2016). During the shutdown market participants struggled to access important information necessary for price discovery and several other uses (discussed further below). The livestock industry had become dependent on information provided by LMR.
4. In 2018, after considerable industry lobbying USDA AMS market reporting under LMR was deemed an essential government service. As such, when another federal government shutdown occurred in December 2018, AMS market reports continued to be compiled and published despite the shutdown.
5. Recently, LMR reauthorization has been pushed down the road rather than being reauthorized. In September 2020, when reauthorization was due during the COVID-19 pandemic, congress extended it until December 2020. Reauthorization was again extended multiple times and is currently set to be reauthorized in September 2022.

Over time as market information reports associated with LMR became more established, the use of LMR information became institutionalized and used for several purposes beyond the original emphasis on price discovery. In particular, LMR published market information has gained considerable trust across industry stakeholders as well as other government agencies to where today it is used for:

1. Enhancing price discovery by industry participants
2. Providing a source for base prices used in marketing agreements
3. Serving as settlement indexes on CME futures contracts
4. Establishing insurance contracts
5. Indemnity loss payment determination
6. Foundational data for research

7. Central information for market outlook and forecasting
8. Policy analysis

The markets and processing systems responsible for the production and sale of beef in the United States were disrupted by two major shocks in 2019 and 2020. The first occurred when the Tyson Fresh Meats beef packing plant in Holcomb, Kansas closed for four months following a fire at the facility on August 9, 2019. This was followed by major supply chain disruptions and packing plant operational capacity constraints associated with COVID-19 in 2020. These shocks reinforced the importance of LMR to the U.S. cattle and beef industry, commerce, and consumers. The availability of this information allowed market participants to better understand disruptions and anticipate impacts (Tonsor and Schulz, 2020). Looking back at the data provided a way to investigate, document, and corroborate impacts (USDA-AMS, 2020; Lusk, Tonsor, and Schulz 2021).

Table 3.1.1. Summary of LMR Authorization and Other Important Event Timeline in U.S.

Year	Month	Action
1999	October	LMR Act passed
2001	April	LMR implemented
2001	August	3/70/20 confidentiality guidelines replace 3/60 guidelines used by AMS in reporting
2005	September	LMR statutory authority lapsed for three days and packers continued reporting
2005	October	LMR reauthorized
2008	May	Final Rule reestablished LMR
2010	September	LMR reauthorized
2013	October	LMR discontinued reporting during 16-day October government shutdown
2013	September	LMR began for wholesale pork
2015	September	LMR reauthorized
2018	December	LMR deemed essential government service
2020	September	LMR reauthorization extended until December 2020
2020	December	LMR reauthorization extended until Dec. 2021, later to Feb. 2022, and later to Sept. 2022
2022	September	LMR deadline for reauthorization September 30, 2022

Recently USDA-AMS released two new reports. On August 9, 2021 USDA-AMS began publishing a *National Daily Direct Formula Base Cattle* report, which allows correlations between negotiated trade and reported formula base prices to be assessed. Also by comparing formula base and net prices, the net impact of premium and discount adjustments can be better understood. Daily morning, afternoon, and summary formula base price reports will be national in scope to ensure confidentiality. Weekly and monthly reports will be at the national and regional levels and include forward contract base purchase prices. A *National Weekly Cattle Net*

Price Distribution report was first issued on August 10, 2021. The data represent the distribution of average net prices in increments of \$2/cwt from the weighted average net price of each purchase type. Purchase types include negotiated, negotiated grid, formula, and forward contract. These new reports are yet another example of USDA-AMS receiving stakeholder feedback and making enhancements to reports and published data to reflect the dynamics of the industry and the value of market information.

3.2. LIVESTOCK MANDATORY REPORTING CONFIDENTIALITY GUIDELINES

From the launch of LMR, maintaining confidentiality of published market data was considered essential. The Act called for maintaining confidentiality of proprietary data, but it did not specifically indicate how that would be accomplished. The Act left it up to USDA to develop market reporting mechanisms to ensure confidentiality. Initially, USDA adopted a 3/60 rule at the request of the Office of Management and Budget. The 3/60 guideline entailed precluding publishing market information which did not have at least three reporting entities or if more than 60% of the trade volume was represented by a single entity in the particular trade area and time period being reported. The 3/60 guideline prevented a substantial number of market reports from being published. From April 2 – June 15, 2001, the first six weeks of LMR enactment, about 24% of all USDA daily reports were not published due to not meeting confidentiality (Heykoop, 2001). In fed cattle the problem was even more pervasive as 81% of national daily afternoon price reports were withheld due to applying 3/60 (Grunewald, Schroeder, and Ward, 2004).

In August 2001, USDA adopted a revised confidentiality guideline, the 3/70/20 rule. The 3/70/20 rule requires meeting all three of the following conditions:¹⁸

- At least three reporting entities need to provide data at least 50 percent of the time over the most recent 60-day time period.
- No single reporting entity may provide more than 70 percent of the data for a report over the most recent 60-day time period.
- No single reporting entity may be the sole reporting entity for an individual report more than 20 percent of the time over the most recent 60-day time period

Adoption of the 3/70/20 guideline resolved many, but not all, problems associated with nonreportable trade due to confidentiality especially relative to the prohibitive 3/60 rule. However, the 3/70/20 rule continues to preclude substantial reporting for some species (e.g., lamb) and for some regional reports (e.g., Colorado negotiated fed cattle). In regional fed cattle markets, the most binding constraint is the first on the list (the “3” part of the 3/70/20) of at least three reporting entities needing to provide data at least 50% of the time over the recent 60-day period.


Simply requiring three reporting entities provide data to publish market information is likely sufficient for maintaining confidentiality. However, that is a more restrictive rule than USDA

¹⁸ <https://www.ams.usda.gov/sites/default/files/media/ConfidentialityGuidelines.pdf>

currently uses. In fact simply requiring three entities provide data at any time to publish a market report would likely be nearly as problematic as the original 3/60 rule. In concentrated fed cattle markets where four-firm steer and heifer slaughter packer concentration exceeds 80% nationally in the United States, regionally, it is often much higher. As such, requiring all published data to have at least three packers represented during each time period would prevent many USDA market reports from being published. Applying a less restrictive rule of 3/70/20 enables potentially much more information reporting than if a three reporting entity rule were employed.

Another aspect often not well understood is that USDA regularly publishes data from individual transactions. Many USDA reports contain price ranges where the high and low price for a product is reported even with small volume and small numbers of trades. It is not uncommon for a specific product in a boxed beef report (and others) to contain only three transactions with a high, low, and weighted average reported. For example, consider the snapshot below from the September 2, 2022 *National Daily Boxed Beef Cutout and Boxed Beef Cuts-Negotiated Sales -Afternoon* report (Figure 3.2.1). Take for example the 171C *Round eye of round* where the range is reported at \$303 - \$310 with a weighted average of \$309.61. **The range reveals two of the three transaction prices in the report.** Yet the published price adheres to the 3/70/20 confidentiality rule.

Figure 3.2.1. Example Boxed Beef Report



USDA National Daily Boxed Beef Cutout And Boxed Beef Cuts - Negotiated Sales -
Afternoon
Agricultural Marketing Service
Livestock, Poultry, and Grain Market News

September 02, 2022
[LM_XB403](#)

IMPS/FL		Sub-Primal	# of Trades	Total Pounds	Price Range	Weighted Average
120A	3	Brisket, point/off, bnls	0	0	0.00 - 0.00	0.00
123A	3	Short Plate, short rib	3	2,545	575.00 - 625.00	597.87
130	4	Chuck, short rib	8	94,041	324.00 - 420.70	327.73
160	1	Round, bone-in	0	0	0.00 - 0.00	0.00
161	1	Round, boneless	0	0	0.00 - 0.00	0.00
167A	4	Round, knuckle, peeled	5	6,241	285.00 - 309.70	298.45
168	1	Round, top inside round			-	
168	3	Round, top inside round	8	22,214	260.00 - 294.70	282.72
169	5	Round, top inside, denuded	4	29,191	304.00 - 330.00	318.01
169A	5	Round, top inside, cap off			-	
	3	Round, top inside, side off	0	0	0.00 - 0.00	0.00
170	1	Round, bottom gooseneck	0	0	0.00 - 0.00	0.00
171B	3	Round, outside round	5	8,665	280.00 - 303.32	287.97
171C	3	Round, eye of round	3	4,050	303.00 - 310.00	309.61
174	3	Loin, short loin, 0x1	9	16,035	480.00 - 525.41	492.29
175	3	Loin, strip loin, 1x1			-	
	1	Loin, strip loin bnls, 1x1	3	1,606	426.24 - 474.00	439.38
180	3	Loin, strip, bnls, 0x1	11	36,117	467.00 - 519.00	483.77
184	1	Loin, top butt, bnls, heavy			-	

Confidentiality of individual company information has numerous dimensions. How one even defines maintaining proprietary information is debatable. In the example above where under LMR USDA publishes actual prices of individual companies, as long as the companies are not identified and they meet the 3/70/20 guideline, at least for LMR purposes the information is considered not breaching confidentiality. However, how much proprietary information might be published in a market report can also be influenced by factors other than the guideline used to allow or preclude reporting of specific data. The following dimensions of data aggregation prior to publishing market information can impact how much proprietary information might be revealed but all also have tradeoffs:

1. **Aggregating over time.** Daily reports are likely more difficult to maintain proprietary information than weekly or monthly. However, going to weekly or monthly reports by nature makes the reported information lag market activity which can be problematic in a market with rapidly evolving supply and demand information.
2. **Aggregating over products or qualities of the same product.** Individual beef products are much more likely to have fewer buyers and sellers than are several products combined. Aggregation across products and/or quality increases chances of maintaining greater confidentiality of individual transaction data. However, aggregating across products or quality of products reduces the detailed nature of the information on specific products or attributes.
3. **Aggregating across regions.** Market reports representing smaller geographic regions will be more challenging to maintain confidentiality than similar reports that utilize data from several regions at once. Aggregating across regions does not create a problem unless the regions have somewhat segmented markets. If the regions have varied prices relative to each other at times, aggregating across regions masks potentially important spatial price variation.

3.3. GUIDE TO LIVESTOCK MANDATORY REPORTING BOXED BEEF REPORTS

USDA-AMS publishes 6 daily and 11 weekly beef reports under LMR by analyzing an average of 15,000 records per day. These reports cover over 90% of the total boxed beef sales volume.¹⁹ All federally inspected cattle plants which slaughter at least an average of 125,000 head per year are required to report the prices and quantities of all wholesale beef sold prior to the established reporting times to USDA AMS twice per day at 10:00 am CST and 2:00 pm CST

¹⁹ The term “boxed beef,” as defined by the Code of Federal Regulations, means those carlot-based portions of a beef carcass including fresh and frozen primals, subprimals, cuts fabricated from subprimals (excluding portion-control cuts such as chops and steaks similar to those portion cut items described in the Institutional Meat Purchase Specifications (IMPS) for Fresh Beef Products Series 100), thin meats (e.g. inside and outside skirts, pectoral meat, cap and wedge meat, and blade meat), and fresh and frozen ground beef, beef trimmings, and boneless processing beef (e-CFR, 2008).

Monday through Friday (USDA-AMS, 2021a).²⁰ Daily LMR beef reports are normally published one hour after packers submit data. LMR beef sales reporting are for first time sales only and distributors, grinders, exporters, etc. who do not slaughter do not submit LMR sales data.

Beef items that are submitted include primals, subprimals, cut items, ground beef, and trimmings and boneless processing beef. Beef offal and variety meat sales are not reported to LMR. Each submitted beef sale specifies the following criteria (e-CFR, 2008; USDA-AMS, 2021a):²¹

- Destination – domestic, overseas, or NAFTA (USMCA)
- Sales type – negotiated, formula, or forward contract
- Delivery period – 0-21 days, 22-60 days, 60-90 days, 90+ days
- Refrigeration – fresh, frozen or aged
- Beef type – steer and heifer, cow, bull, dairy bred, etc.
- Grade for steer and heifer beef (e.g., USDA Prime, USDA Choice or better, USDA Choice, USDA Select, ungraded no-roll product) and grade for cow beef or packer yield and/or quality sort for cow beef (e.g., Breakers, Boners, White Cow, Cutters (lean))
- Unbranded or branded product characteristics, if applicable
- Specific item – packer SKU#, or Institutional Meat Purchase Specifications (IMPS) item
- Quantity sold – in pounds
- FOB plant price – in dollars per hundredweight (cwt)

The boxed beef cutout represents the estimated gross value of a beef carcass based on prices paid for individual beef items derived from the carcass. In other words, weighted average prices of individual items are used to calculate a weighted average value for primal cuts. The primal cut values are then used to calculate a carcass equivalent value. The costs of fabricating carcasses into individual beef items are not deducted from the cutout values. USDA surveys packers covered under LMR in July and updates the fabrication yields the following January if necessary. The current yields are rib (11.40%), chuck (29.62%), round (22.32%), loin (21.26%), brisket (4.95%), short plate (7.10%), and flank (3.35%) (USDA-AMS, 2022). The chuck primal constitutes the largest share of the cutout value, followed by the round and loin, and so on.

The 6 daily negotiated beef reports are listed in Table 3.3.1. The term “negotiated” when used in reference to sales of boxed beef means a sale by a packer selling boxed beef to a buyer of boxed beef under which the price for the boxed beef is determined by seller-buyer interaction and agreement on a day (e-CFR, 2008). Negotiated boxed beef cutout specifications include unbranded domestic fresh beef sales to be delivered in 0-21 days from native steers and heifers (except for 50% trimmings) grading Choice and Select. Specifications are similar for negotiated cutter cow cutouts. The *National Comprehensive Boxed Beef Cutout - All Fed Steer/Heifer Sales* report includes the comprehensive value and volumes of all reported wholesale beef trade

²⁰ Currently, 41 live cattle plants slaughter more than 125,000 head of cattle per year. Over 92% of national fed cattle transactions and 33% of all cow and bull transactions are covered through LMR (USDA-AMS, 2021b).

²¹ There are established policies for excluding transactions for particular categories of boxed beef (<https://www.ams.usda.gov/rules-regulations/mmr/lmr/excluded-transactions>).

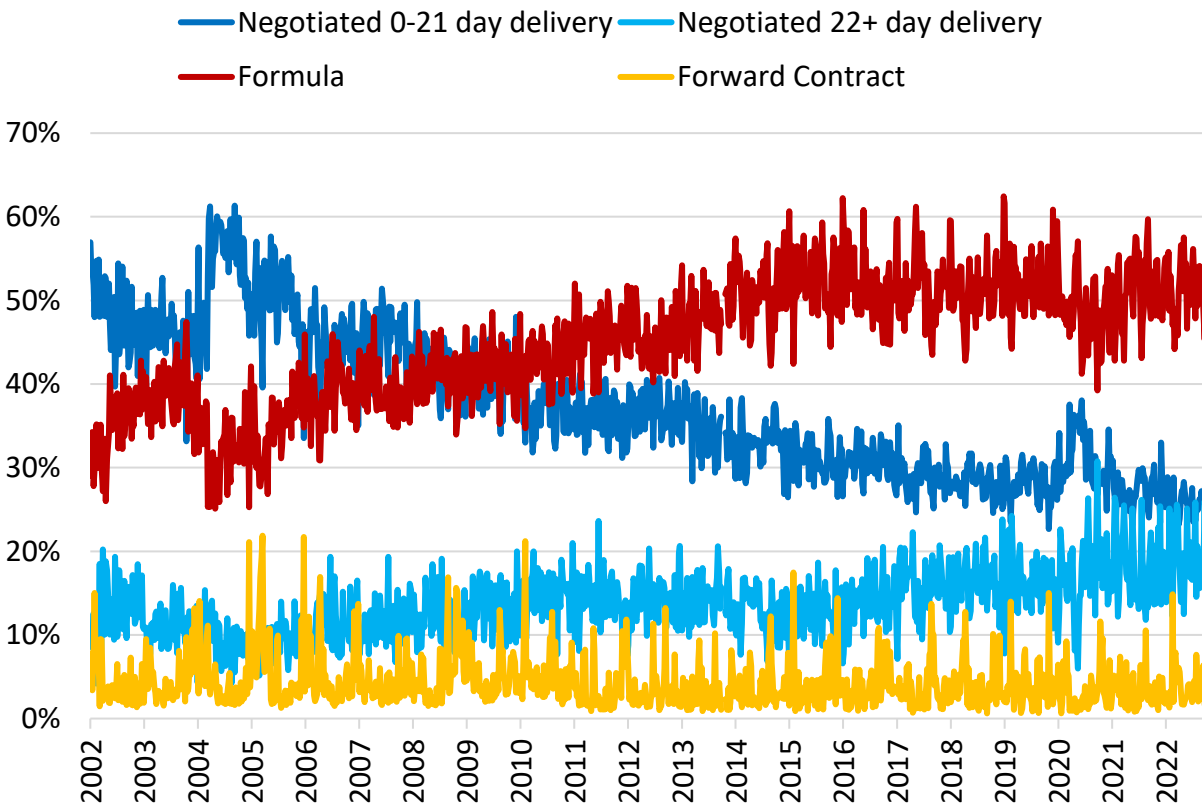
within a week. This report along with the other 10 other weekly beef reports are also listed in Table 3.3.1.

Table 3.3.1. Daily and Weekly LMR Beef Reports

No.	Slug ID	Slug Name	Report Title
Daily			
1.	2450	LM_XB400	National Daily Boneless Cow Beef and Beef Trimmings - Negotiated Sales - Morning
2.	2451	LM_XB401	National Daily Boneless Cow Beef and Beef Trimmings - Negotiated Sales – Afternoon
3.	2452	LM_XB402	National Daily Boxed Beef Cutout and Boxed Beef Cuts - Negotiated Sales - Morning
4.	2453	LM_XB403	National Daily Boxed Beef Cutout and Boxed Beef Cuts - Negotiated Sales - Afternoon
5.	2454	LM_XB404	National Daily Cutter Cow Cutout and Boxed Cow Beef Cuts - Negotiated - Morning
6.	2455	LM_XB405	National Daily Cutter Cow Cutout and Boxed Cow Beef Cuts - Negotiated - Afternoon
Weekly			
1.	2456	LM_XB450	National Weekly Boneless Cow Beef and Beef Trimmings - Formulated Sales
2.	2457	LM_XB452	National Weekly Boxed Beef Cuts - Branded Product - Negotiated Sales
3.	2458	LM_XB454	National Weekly Boxed Beef Cuts - Formulated Sales
4.	2459	LM_XB455	National Weekly Boxed Beef Cuts - Forward Negotiated Sales
5.	2460	LM_XB456	National Weekly Boxed Beef Cuts - Prime Product
6.	2461	LM_XB459	National Weekly Boxed Beef Cutout and Boxed Beef Cuts - Negotiated Sales
7.	2462	LM_XB460	National Weekly Boneless Cow Beef and Beef Trimmings - Negotiated Sales
8.	2463	LM_XB461	Final National Weekly Cutter Cow Cutout and Boxed Cow Beef Cuts - Negotiated
9.	2464	LM_XB462	National Weekly Boxed Beef Cuts - Ungraded Product
10.	2643	LM_XB463	National Comprehensive Boxed Beef Cutout - All Fed Steer/Heifer Sales
11.	2647	LM_XB864	National Boxed Beef Weekly Item Summary

The comprehensive report provides several volume (load count) breakdowns. A unique aspect of these volume breakdowns is that all fed steer/heifer (including dairy bred) product is included.²² Sales type is categorized as negotiated sales 0-21 day delivery, negotiated sales 22+ day delivery, formula, and forward contract. Boxed beef sales types over the 2002 – September 2022 period are illustrated in Figure 3.3.1. **Most apparent is the increase in formula pricing. Formula pricing went from about 30-40% of sales in the early 2000s to commonly around 50% since 2014. During the same time frame, negotiated trade for 0-21 day delivery went from about 50% to 30% and negotiated trade for 22+ day delivery increased from typically around 10-15% to roughly 20%.** USDA-AMS (2021a) discusses a few possible reasons for the decrease in negotiated sales. One relates to an increase in product variation, i.e., packer SKU inventory totals (product code lists) number in the thousands. Also, there are currently over 100 AMS Certified Beef Programs. With this many products there is increased potential that some sales do not meet confidentiality guidelines and so they are not published in reports.

Figure 3.3.1. U.S. Comprehensive Boxed Beef Volume by Sale Type



²²<https://www.ams.usda.gov/sites/default/files/media/Comprehensive%20Boxed%20Beef%20Cutout%20Overview%20PDF.pdf>

Quality grade is divided into Prime, Branded (which includes all Choice branded such as Upper 2/3rds and lower 1/3rds Choice), Choice, Select, and Ungraded (which includes cuts, grinds, and trim) and shown in Figure 3.3.2. Ungraded product has consistently been above 30% of sales for the last 20 years. While Choice grade has averaged about 30% of sales what has changed over time is that Branded product has grown from under 10% in the early 2000s to roughly 20% today. Branding of beef retail products has gained momentum in recent years (Schulz, Schroeder, and White, 2012). For example, in 2004, 42% of beef retail products were branded, a figure that grew to 63% in 2010 (National Cattlemen’s Beef Association, 2010). Prime product sales have quadrupled over the last 20 years.

Figure 3.3.2. U.S. Comprehensive Boxed Beef Volume by Quality Grade

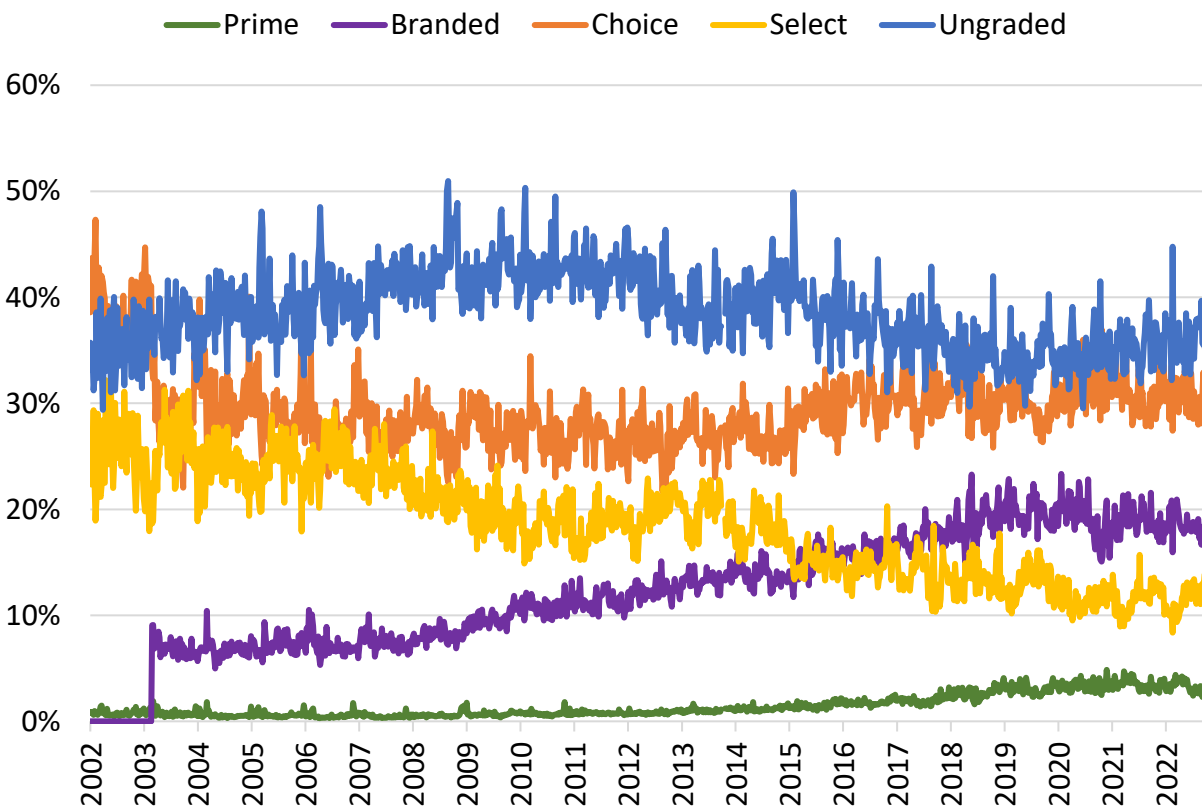


Figure 3.3.3 shows boxed beef sales destinations. Destination is divided into domestic sales and total exports (prior to September 2008) and after that NAFTA (USMCA) exports and overseas exports. Boxed beef exports to Canada and Mexico have maintained about 1%-2% of total sales volume over time while exports to the United States' diverse portfolio of other export customers has grown to 10%-20% of the weekly comprehensive boxed beef volume. As exports play an ever-increasing role in price discovery, this data has the potential to provide an indication of export demand developments.

Figure 3.3.3. U.S. Comprehensive Boxed Beef Volume by Destination

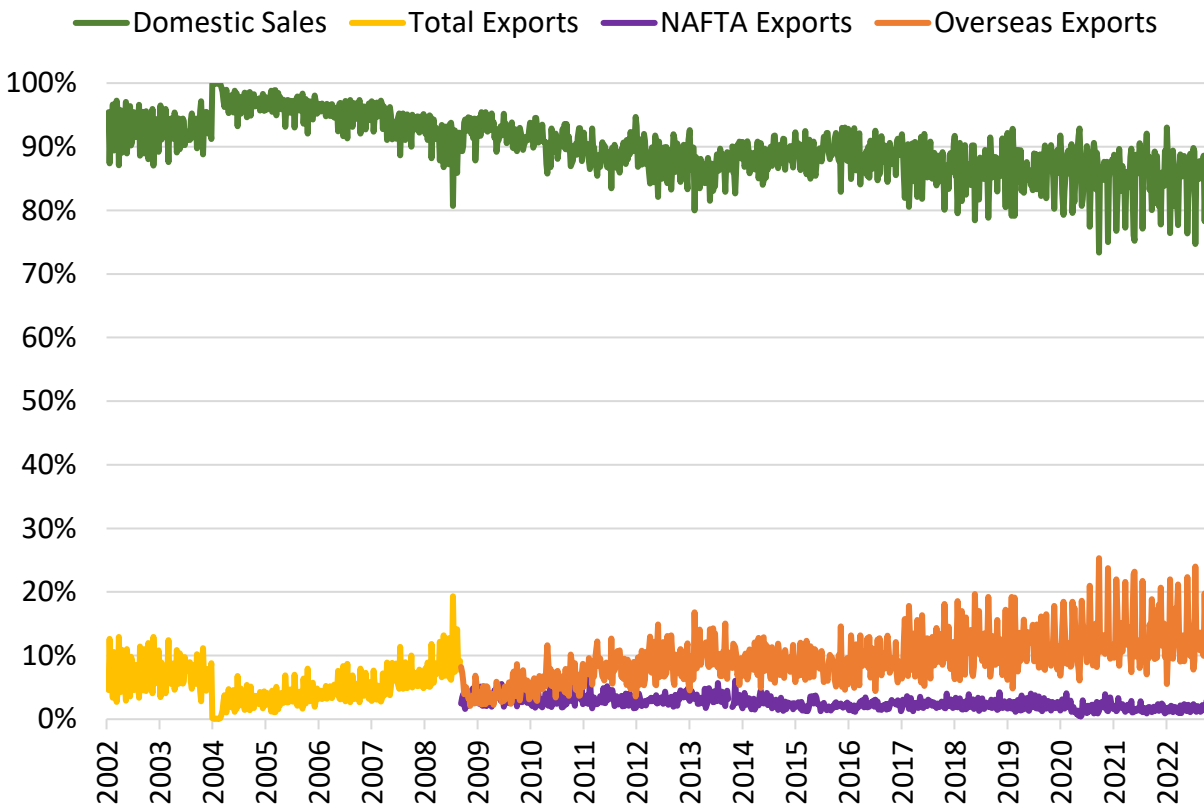
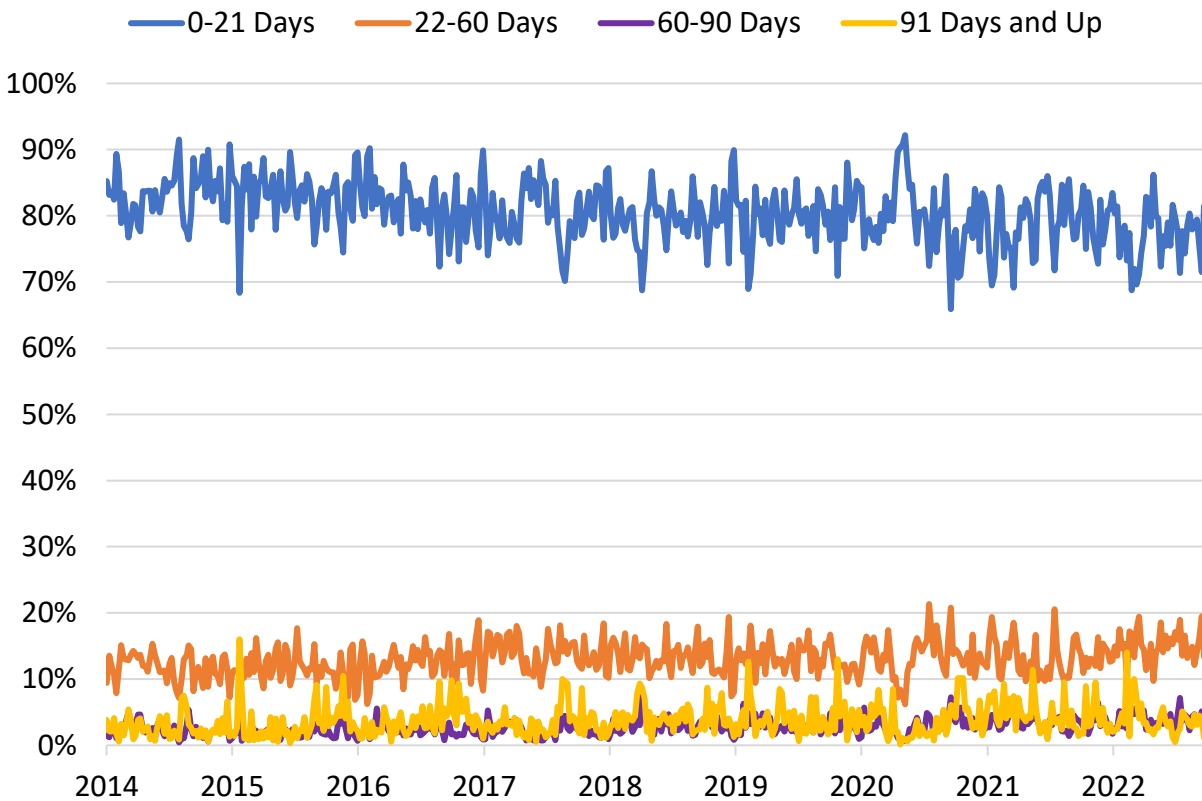


Figure 3.3.4 shows boxed beef delivery periods included in the comprehensive report. This data has been available since 2014. It has been said that food service and retail establishments price wholesale purchases well in advance of delivery (Schroeder, Coffey, and Tonsor, 2021). USDA Economic Research Service (2022) data shows that food away from home represented about 49% of total food expenditures in 2014. This increased to 53% in 2021 and 2022. Over the 2014 – September 2022 period boxed beef priced in advance of 21 days of delivery has increased from 17% in 2014 to over 20% of boxed beef trade in 2021 and 2022. Furthermore, during some weeks, more than 30% of boxed beef is priced more than three weeks forward. The pandemic’s effect on forward purchases was significant. Deliveries in the 61-90 day and the 90 day and more windows fell below 1% of the total boxed beef trade for some weeks in the spring of 2020. From a buyers perspective there was likely hesitation to book forward looking deliveries with such an uncertain situation.

Figure 3.3.4. U.S. Comprehensive Boxed Beef Volume by Delivery Period



CHAPTER 4: ALTERNATIVE INFORMATION REPORTING AND PUBLISHING CONSIDERATIONS

4.1. CONSOLIDATING INFORMATION ACROSS CATEGORIES OR WEEKS

Canadian beef market information reporting under the current system, conditional on maintaining confidentiality, has become challenging. **The most apparent way to attempt to address confidentiality constraints and still maintain the criteria of trade collected (i.e., negotiated sales with delivery to the domestic market within 0-21 days, non-branded product, etc.) voluntarily is to aggregate data across reporting categories or over time.**

The process by which boxed beef prices and cutout values are derived already involves aggregation. A beef carcass is fabricated into individual cuts which are grouped into primals, vacuum packaged, and then placed into cartons to be shipped as boxed beef. The cutout value is derived from a formula that estimates the value of the carcass using a weighted average from primals. Primals are broken down into the percentage weight they contribute to the carcass value. It is from these values that the cutouts are calculated. Even if individual products, thin meats, trim, and ground beef data is suppressed in the Canadian Boxed Beef Report, it is still being used in primal and cutout calculations. Assuming a minimum level of wholesale beef reporting volume could be maintained voluntarily (see section 4.2), primal values and carcass cutouts could continue to be published under the current format. One could also consider aggregating across quality grades, AAA and AA, into a single category. A major drawback to this aggregation is that combining categories reduces the content of the market information that is discernable from market reports. For example, in general the round, chuck, and loin are usually good indicators of beef movement (Canfax, 2008), but if only carcass cutouts are published this indicator is not available. Similarly, the value of lean trim has an impact on all primal values (Canfax, 2008) but without publishing lean trim information the degree of this impact is unknown.

Another consideration is to combine multiple weeks into published categories. We examined consolidating across a four-week period for the years 2018 and 2019. Table 4.1.1 and Table 4.1.2 summarize how packers reporting and confidentiality guidelines would have impacted the ability to publish individual items weekly based on using a rolling four-week period. Under this approach of consolidating and publishing, a higher percentage of weeks are publishable because there is a fewer percentage of weeks that there is no high-low price range and a fewer percentage of weeks that packers did not report.²³ This is as expected because a “week” is now defined as a four-week rolling period. An individual packer could conceivably be the only packer providing both the high and low price during a four-week period. However, under the current publishing procedure this would still fall within confidentiality guidelines as a high-low price range would be available.

²³ We also considered consolidating by calendar month. Results were similar in that in general more items would be publishable. Under this approach to consolidation, only 12 monthly reports would be published each year as opposed to the rolling four-week period approach that would provide weekly reports.

Table 4.1.1. Percentage of Weeks Products Publishable, No High-Low Price Range, and Not Reported, Rolling 4-Week Period

	AAA						AA					
	Publishable		No High-Low Range		Not Reported		Publishable		No High-Low Range		Not Reported	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Quebec Spec	50%	0%	0%	0%	50%	100%	50%	31%	0%	0%	50%	69%
Semi-Boneless	90%	62%	0%	0%	10%	38%	54%	34%	0%	0%	46%	66%
Short Cut shoulder clod	96%	94%	0%	6%	4%	0%	96%	100%	0%	0%	4%	0%
Clod Heart	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	100%	100%
Clod Tender	33%	58%	33%	0%	35%	42%	58%	75%	27%	0%	15%	25%
2 Piece Boneless Chuck	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	100%	100%
Chuck Roll	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Chuck Roll 0x0	58%	0%	0%	0%	42%	100%	58%	34%	0%	0%	42%	66%
Oven Ready Rib	90%	69%	0%	0%	10%	31%	4%	4%	0%	0%	96%	96%
Bone-in Lipon Ribeye 17 up	54%	0%	0%	0%	46%	100%	96%	100%	0%	0%	4%	0%
Bone-in Lipon Ribeye 17 dn	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Boneless Lipon Ribeye 14 up	96%	92%	0%	0%	4%	8%	96%	100%	0%	0%	4%	0%
Boneless Lipon Ribeye 14 dn	54%	0%	0%	0%	46%	100%	54%	34%	0%	0%	46%	66%
Back Ribs	88%	37%	0%	0%	12%	63%	88%	85%	0%	0%	12%	15%
Short Loin 1x0	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Striploin 0x1 13up	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Striploin 0x1 13dn	54%	0%	0%	0%	46%	100%	54%	34%	0%	0%	46%	66%
Top Butt 13up	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Top Butt 13dn	54%	0%	0%	0%	46%	100%	54%	34%	0%	0%	46%	66%
PSMO Tenderloin	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Butt Tenderloin	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Boneless Round	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	100%	100%
Inside Round 1"	0%	0%	21%	0%	79%	100%	0%	0%	21%	0%	79%	100%
Inside Round	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Outside Flat	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Eye of round	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Peeled Knuckle	96%	100%	0%	0%	4%	0%	96%	100%	0%	0%	4%	0%
Gooseneck	0%	0%	21%	0%	79%	100%	0%	0%	21%	27%	79%	73%

Table 4.1.2. Percentage of Weeks Thin Meats, Trim (Fed), and Ground Beef Publishable, No High-Low Price Range, and Not Reported, Rolling 4-Week Period

	Publishable		No High-Low Range		Not Reported	
	2018	2019	2018	2019	2018	2019
<u>Thin Meats</u>						
Chuck Tender	96%	100%	0%	0%	4%	0%
Briskets 120	96%	100%	0%	0%	4%	0%
Bone-in Chuck Shortrib	96%	100%	0%	0%	4%	0%
Flat Iron	100%	100%	0%	0%	0%	0%
Blademeat	96%	100%	0%	0%	4%	0%
Bone-in Shortrib	63%	90%	33%	10%	4%	0%
Outside Skirt	79%	100%	17%	0%	4%	0%
Inside Skirt	90%	96%	6%	4%	4%	0%
Flapmeat	96%	100%	0%	0%	4%	0%
Ball Tips	96%	100%	0%	0%	4%	0%
Tri Tips	52%	96%	44%	4%	4%	0%
Flank Steak	96%	100%	0%	0%	4%	0%
Pectoral Muscle	96%	100%	0%	0%	4%	0%
Lointails	21%	46%	38%	0%	40%	54%
<u>Trim (Fed)</u>						
Fresh 50% Lean Trimmings	96%	100%	0%	0%	4%	0%
Fresh 65% Lean Trimmings	100%	100%	0%	0%	0%	0%
Fresh 75% Lean Trimmings	100%	100%	0%	0%	0%	0%
Fresh 81% Lean Trimmings	40%	100%	60%	0%	0%	0%
Fresh 85% Lean Trimmings	100%	100%	0%	0%	0%	0%
Shankmeat	100%	100%	0%	0%	0%	0%
<u>Ground Beef</u>						
Extra Lean Ground Beef	100%	100%	0%	0%	0%	0%
Lean Ground Beef	92%	100%	0%	0%	8%	0%
Medium Ground Beef	58%	100%	0%	0%	42%	0%
Regular Ground Beef	100%	100%	0%	0%	0%	0%
Ground Chuck	100%	100%	0%	0%	0%	0%
Ground Sirloin	92%	100%	0%	0%	8%	0%

A concern with combining multiple weeks is that if divergent market values are combined or the market price is changing rapidly this can result in published market information that is difficult to interpret or of little value. For example, if prices were forward trending the prior week but the three weeks prior to that were flat or trending lower, combining data across the four-week period could result in an averaging out and masking of the market trend. **The tradeoff is clear, consolidation might increase the ability to publish, but at the cost of information content and value.** Furthermore, consolidating information across reporting

categories or over time cannot resolve thinning market trends. Addressing this issue is the purpose of the next several sub-sections of Section 4 of this report.

4.2. LOADS NEEDED FOR CANADIAN BOXED BEEF REPORTING

Hayenga et al. (1978) defines a “thinly-traded” market, or “thin” market for short as one “with few negotiated transactions per time period.” The thinness of a market does not necessarily imply poor market performance, but prices determined in thin markets raise potential concerns (Hayenga et al., 1978; Tomek and Robinson, 1990). Peterson (2005) summarizes three major concerns related to thin markets. First, transacted and reported prices may no longer represent overall supply and demand conditions. For example, did the 17.8% of FI fed beef production captured in the Canadian Boxed Beef Report on average in 2019, and the price levels and price changes of individual cuts, primals, and carcass cutouts accurately represent Canadian wholesale beef market conditions? Second, thinness may cause excess volatility in the market price, increasing transaction costs for market participants due to higher price risk. As this relates to the availability of information, Hayenga et al. (1978) contend that insufficient public information may be an externality associated with thinly-traded markets, heightening barriers to entry and forcing firms to internally increase costs to gather sufficient market information. Third, thin markets can make price manipulation easier due to the magnified impact of individual transactions.

The definition of what might constitute an acceptable number of negotiated transactions per time period in a particular market is necessarily subjective. Tomek (1980) suggested the use of a statistical measure, Chebychev’s inequality, as a metric of the reliability of an existing price series. In recent years this framework has been applied to determining ‘how thin is too thin’ in national and regional fed cattle markets in the United States (Koontz, 2013) and in the U.S. wholesale pork market (Parcell, Schroeder, and Tonsor, 2009; Franken and Parcell, 2012). The issue of reliability of a price has several dimensions. First, reliability is subject to how much error in the market price one is willing to tolerate. Wider tolerance suggests the need for fewer trades. However, even modest tolerance levels can have large dollar impacts. Furthermore, the likelihood that pricing errors are symmetric around zero might be questionable. Second, reliability of a price depends on how much confidence market participants want to have in the price being within a certain error tolerance. That is, if one wants to be 90% sure that the price is accurate, this takes a lot more transactions than if one wants to be 80% sure.

Chebychev’s inequality allows for the calculation of a desired number of transactions, or observations, to obtain a given level of expected price reliability. That is, given the error tolerance, the confidence level desired, and the variance in weekly carcass cutout price changes from one week to the next, we can calculate the number of observations needed to reliably compose the Canadian Boxed Beef Report. This computed number of observations, which represents the expected number of observations from Chebychev’s inequality, can then be compared to the actual quantity of trade reported to assess the sufficiency, or insufficiency, of

the volume currently deriving Canadian boxed beef prices. Chebeychev's inequality can be expressed as:

$$P(-c \leq X_n - \mu \leq c) \geq 1 - \frac{\sigma^2}{nc^2}$$

where P is a probability operator or the confidence level, X and μ represent the mean and deviation from the mean, respectively, c represents the desired margin of error, σ^2 is the variance of the data series, and n is the number of observations. Rearranging Chebychev's inequality to solve for the minimum n necessary to satisfy the inequality yields:

$$n = \frac{\sigma^2}{(1 - P)c^2}$$

where greater numbers of observations n are required as the level of pricing reliability desired increases (i.e., higher P and lower c), and for any particular chosen level of pricing accuracy, n increases with market variation σ^2 .

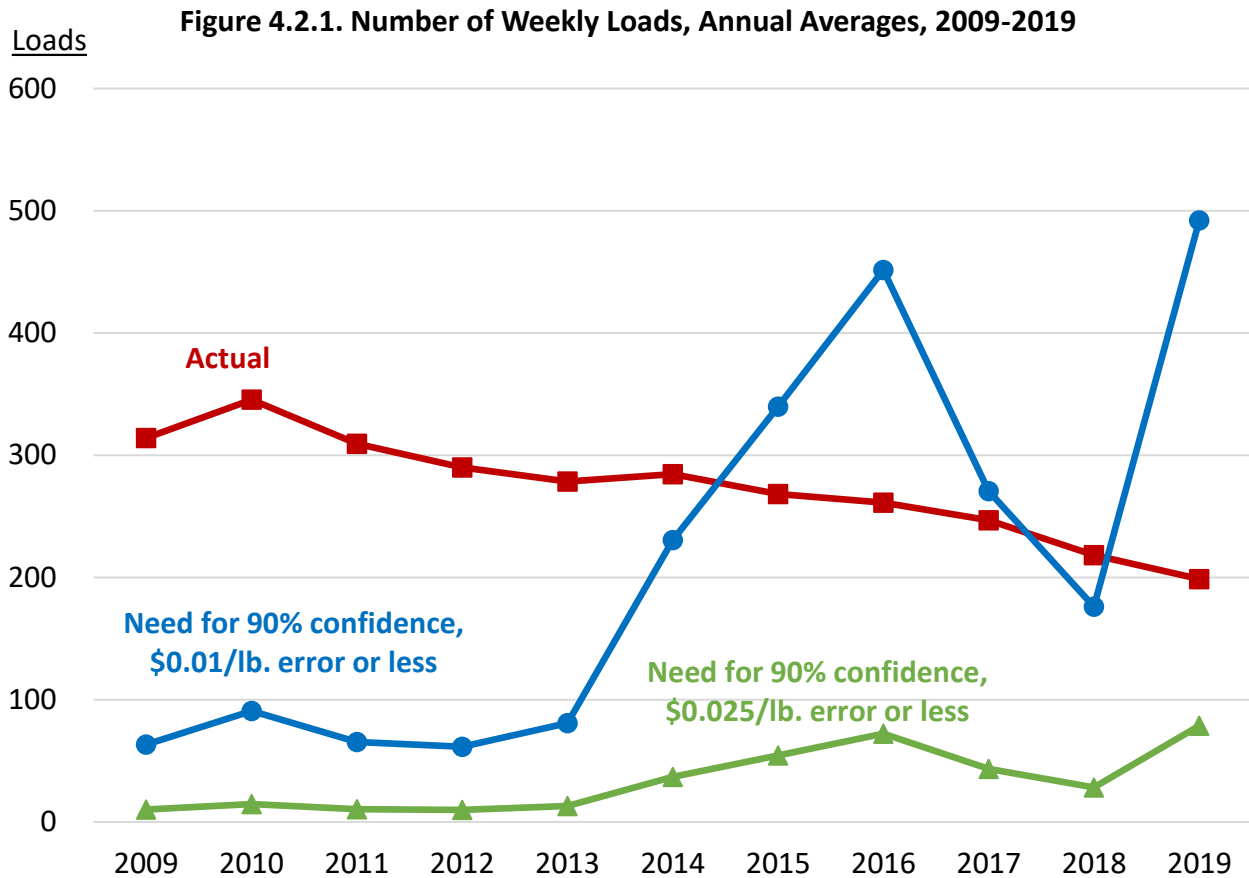
Determining the number of observations necessary to yield a certain level of confidence with reported Canadian boxed beef price data requires a few assumptions to be made. Observations or transactions are measured in load counts. Because the total load count in the Canadian Boxed Beef Report includes AAA and AA grades, a weekly weighted average composite Canadian carcass cutout price was constructed.²⁴ The probability of reliability was set at 90%, which while arbitrary, was the customary level in related research (Parcell, Schroeder, and Tonsor, 2009; Franken and Parcell, 2012). The value of the desired margin of error was set to six separate levels including \$0.0010, \$0.0025, \$0.0050, \$0.0100, \$0.0250, and \$0.0500 per pound (lb.) (Table 4.2.1).

Figure 4.2.1 illustrates for two different error tolerance levels (\$0.01/lb. and \$0.025/lb.) the number of loads that would be needed each week to have 90% confidence that the carcass cutout price is accurately reflecting market supply and demand conditions. The number of loads needed for each scenario are calculated across years and compared to the estimated number of loads on average each year.

For a typical week in 2019, the calculation with 90% confidence and \$0.01/lb. error tolerance would have been $(0.0049) / [(1 - 0.90) \times (0.01)^2] = 492$ observations. In other words, during 2019, to be 90% certain the carcass cutout price was not more than \$0.01/lb. in error, would have required 492 loads per week. With increased variability in prices during 2019, the number of loads needed to have 90% confidence that the price is not wrong by more than \$0.01/lb. would have been well above the actual number of transactions on the typical week. If one is

²⁴ The weekly weighted average price was calculated using the published carcass cutout of Canadian AAA and Canadian AA and the respective monthly U.S. percentage of Choice and Select graded beef pounds from the USDA Agricultural Marketing Service Meat Grading reports available at <https://www.ams.usda.gov/reports/meat-grading>.

willing to tolerate a \$0.025/lb. error, the number of loads needed is below the actual number (79 compared to 199) during a typical week in 2019.



Some may argue that with higher carcass cutout prices in 2019, the tolerance error could be higher and based upon a percentage of the price level. However, as a percentage of the average price, the standard deviation in weekly carcass cutout prices was 2.5% in 2019 up from 1.6% in 2018. Increasing the tolerance rate with increasing carcass cutout prices directly increases the industry cost of pricing errors. So, adjusting tolerance error to overall carcass cutout price levels is not recommend without careful assessment of the industry level dollar impact of price errors. For example, if the composite carcass cutout price on a particular day was \$0.01/lb. lower than market conditions indicate was the correct price, live animal equivalent prices that were derived from carcass cutout prices would have been \$0.0065/lb., or \$0.65/cwt lower, on average in 2019.²⁵ This equates to about \$9 per head or \$442,060 per week assuming a 50,000 head weekly fed cattle slaughter run. This potential loss amount is linear and is double if the composite carcass cutout price is lower by \$0.02/lb. On the other hand, if the carcass cutout price is over-stated relative to market conditions, higher live animal equivalent prices would be realized. The likelihood that pricing errors are symmetric around zero might be questionable.

²⁵ The weekly Canadian Boxed Beef Report can be used as a marketing tool to work backwards and determine approximately what live fed cattle prices could be. See Canfax (2008) for calculations from carcass cutout prices to live animal equivalents.

Table 4.2.1. Summary of Statistically Inferred Load Counts Based on Level of Accuracy

Year	Proportion of AAA, AA/A to FI Fed Beef Production	Average Weekly Load Count	Average Price (\$/lb.)	Average Price Change (\$/lb.)	Average Variance of Week-to-Week Price Difference	Estimated Load Count Necessary from Chebychev's Inequality ($P = 0.90$, $c =$ stated value)					
						0.0010	0.0025	0.0050	0.0100	0.0250	0.0500
2009	0.31	314	1.6248	-0.0052	0.0006	6,330	1,013	253	63	10	3
2010	0.34	345	1.5672	0.0018	0.0009	9,080	1,453	363	91	15	4
2011	0.33	309	1.7188	0.0046	0.0007	6,545	1,047	262	65	10	3
2012	0.32	290	1.8612	0.0011	0.0006	6,151	984	246	62	10	2
2013	0.33	279	1.9321	0.0039	0.0008	8,084	1,293	323	81	13	3
2014	0.31	285	2.5271	0.0144	0.0023	23,056	3,689	922	231	37	9
2015	0.30	268	2.9516	0.0000	0.0034	33,967	5,435	1,359	340	54	14
2016	0.27	261	2.6660	-0.0066	0.0045	45,162	7,226	1,806	452	72	18
2017	0.25	247	2.6445	-0.0005	0.0027	27,078	4,332	1,083	271	43	11
2018	0.21	218	2.6678	0.0007	0.0018	17,623	2,820	705	176	28	7
2019	0.18	199	2.7853	-0.0022	0.0049	49,211	7,874	1,968	492	79	20

Notes: The average price, average price change, and average variance of the week-to-week price difference is across a 52-week year. Load count refers to 40,000 lbs. The load count necessary is the number of observed loads required to allow one to infer that 90% of the time the week-to-week composite carcass cutout price movement will fall within a range of the previous week price level +/- the stated level of c . Levels of c are in dollars per pound. As the level of c decreases, the number of loads increases in order to ensure confidence in the estimate.

4.3. COMPREHENSIVE REPORTING AND PUBLISHING OF BEEF MARKET TRADE

Hayenga et al. (1978) states that “a market judged to be ‘thin’ need not be an illiquid, or poorly performing market. There may be sufficient volume ‘waiting in the wings’ that could be quickly triggered into the price determination process.” The authors go on to describe this potential volume as similar products which are only slightly differentiated in time, form or geographic dimensions and that are transferred in vertically integrated forms or via reference price contracts.

Beef is being marketed in dramatically different ways today than in the past. Negotiated trade has been replaced by formula pricing, forward markets, and longer term marketing agreements. Changes in products being produced by packers through value added, branding, specialty programs, and other differentiation challenges market information reporting (Parcell, Tonsor, and Schroeder, 2016). Furthermore, the importance of international trade is elevating in the beef market as more volume (and value) is destined for export markets. LMR data provides evidence of these changes in the U.S. wholesale beef market (see section 3.3). While we do not have the data to speak directly to these changes in the Canadian market, there is some evidence of additional wholesale beef volume that could be reported by packers. Recall, there were very large weekly load counts, relative to weekly fed beef production, voluntarily reported by Canadian packers for weeks ending June 21 in 2013 and July 3, July 10, July 17, July 24, and August 4 in 2015. Given that this was a run of several weeks in 2015, a plausible explanation could be that a new person at a plant being trained to report included more trade than met the specified criteria (personal communication, Brenna Grant, Manager of Canfax). This could have consisted of formula or forward contract sales, export trade, branded beef, and so on.

If the goal of the Canadian Boxed Beef Report is to provide prices and quantities from Canadian beef packers selling in a manner representative of the Canadian wholesale beef market, than an obvious option to consider is to create a Canadian Comprehensive Boxed Beef Report. This could be akin to the *National Comprehensive Boxed Beef Cutout - All Fed Steer/Heifer Sales* report under LMR in the United States. The whole comprehensive report includes all sales types, all delivery periods, and all delivery locations. It consists of fresh, frozen, and aged product. Only fed steer/heifer beef is included, with no cow or blended cow product. Quality grades include Prime, Choice, Select, ungraded, and branded product (which includes all Choice branded such as Upper 2/3rds and lower 1/3rds Choice). Select branded product is absorbed into the Select category. For the cutout section of the comprehensive report only packer’s beef item codes equivalent to an Institutional Meat Purchase Specification IMPS (item) are used in cutout calculations. Specialty cut product, small box product and small chub GB are examples of items that are not equated to IMPS. Cut items do not include dairy bred steer/heifer source, but dairy bred beef is included in trimmings and grinds.²⁶

²⁶<https://www.ams.usda.gov/sites/default/files/media/Comprehensive%20Boxed%20Beef%20Cutout%20Overview%20PDF.pdf>

If the popularity of beef x dairy crossbred cattle continues in Canada,²⁷ inclusion of beef derived from these cattle should be considered. Beef x dairy crossbreds are an increasing crossbreeding opportunity for dairy producers because the calves offer greater value than straight dairy. Recent research indicates beef products produced from beef x dairy crossbred cattle can be marketed alongside straight beef breed products in retail settings without consumer differentiation by color or shape. Furthermore, tenderness, flavor, and juiciness are similar or better for beef x dairy crossbred cattle (Foraker et al., 2022). This suggests beef from the two breeds (beef x beef and beef x dairy crossbred) will be strong substitutes, if not perfect substitutes, in the wholesale beef market. Accordingly, the following are some pros and cons of including dairy-beef in Canadian wholesale beef market reporting.

Pros of including dairy x beef in Canadian wholesale beef market reporting:

- Because beef from straight beef-bred and beef x dairy crossbred products appear to be strong substitutes, they will undoubtedly have similar price patterns meaning including both together in reporting increases reportable volume of products for price reporting, thereby, reducing thin market concerns.
- To the extent beef x dairy crossbred cattle are represented more by some smaller packing plants that may have less volume of beef x beef only products but additional volume of beef x dairy products, combining the two sources may enable utilizing data from more plants in price reporting, thereby, reducing data confidentiality concerns.
- Because beef x dairy crossbreeding is a growing practice, the opportunities will continue to increase to add more volume from this category for price reporting.

Cons of including dairy x beef in Canadian wholesale beef market reporting:

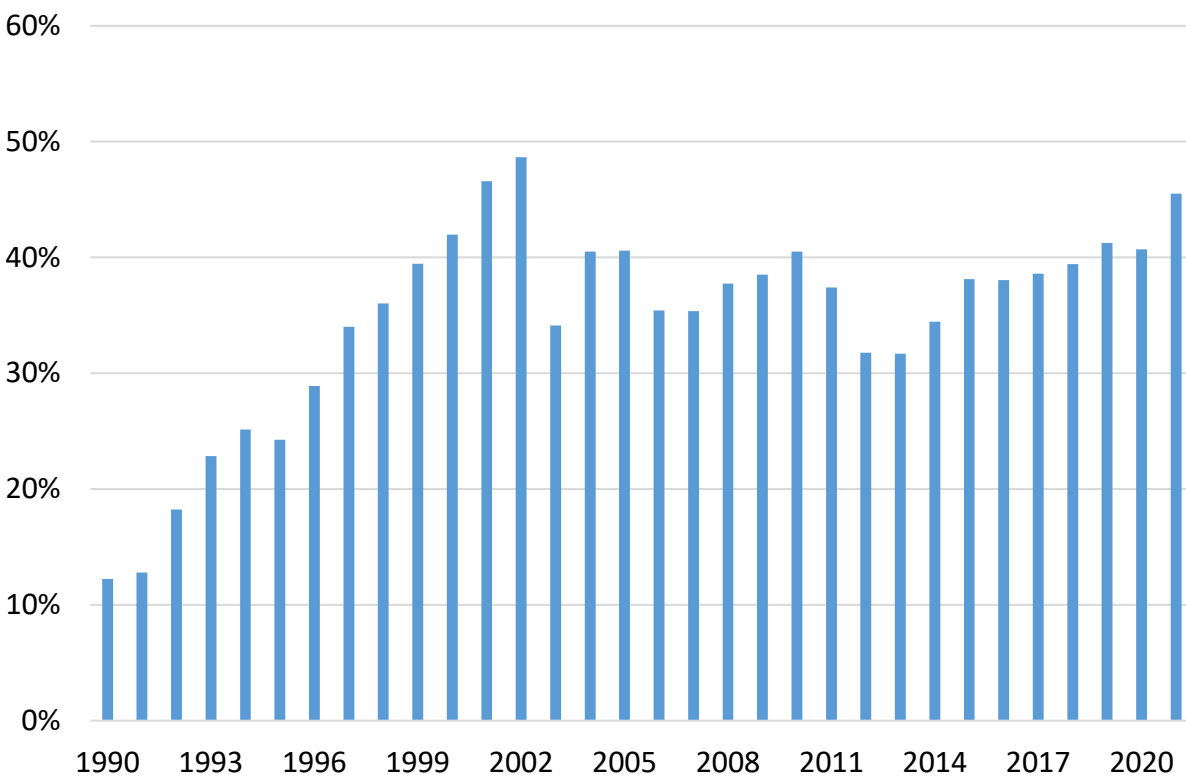
- If beef x dairy crossbred beef is not as strong of a substitute for beef x beef products as current literature suggests is probable, or if for example export markets segregate the two sources with differentiated pricing, then including beef x dairy crossbred products in with beef x beef wholesale products could dilute beef x beef product prices some. This would need to be monitored.
- To combine beef x dairy crossbred beef with existing beef x beef products requires segregating beef x dairy sales records from straight dairy beef sales. Since beef x dairy is likely to have greater value than straight dairy, this is likely to happen in the market anyway. However, in price reporting, data collection would need to be verified or somehow need to be kept identified correctly so straight dairy beef prices do not end up comingled in with beef x dairy crossbred beef. If they are, this will dilute wholesale beef price reporting.
- Branded-beef programs have increased in both prevalence and prominence in recent decades. These programs offer vertical alignment benefits to participating producers, but often time cattle demonstrating dairy breed characteristics are specifically excluded from many branded-beef programs. The relevance of this in price reporting is unless

²⁷ <https://www.ontariobeef.com/programs/dairy-beef.aspx>.

dairy x beef crossbred beef becomes accepted in branded beef programs, it could be less of a perfect substitute over time for straight beef-bred products and result in a price discount for dairy x beef crossbred beef.

An analysis of the possible increase in loads resulting from capturing U.S. and Mexico trade was conducted. On a carcass weight basis, Canada exported 46% of domestically produced beef in 2021 (Figure 4.3.1).²⁸ This was the third highest percentage since 1990 and the highest percentage since 2002. Still, Canada has consistently exported over 30% of production dating back to 1997.

Figure 4.3.1. Percent of Canadian Beef Exported, Carcass Weight Equivalent, 1990-2021



Data source: Statistics Canada, Supply and disposition of food in Canada.

²⁸ Data for beef products are typically reported in metric tons of product weight. The quantity data is often converted from a product-weight basis to a carcass-weight-equivalent (CWE) basis. Data are converted to a CWE basis to allow “apples-to-apples” comparisons to beef production data which are reported in CWE. Quantities are also often converted from metric tons to pounds. Beef carcasses typically have the feet, head, tail, hide, and internal organs removed, although there are some variations across countries. Carcass weight intends to measure the weight of skeletal muscle and bones after the other parts listed above have been removed. Also, for boneless beef products, the conversion factor “adds back” the weight of the bones removed from that portion of the carcass. For processed-meat products, such as sausage, the conversion factors assume some fixed fraction of the product is beef, pork, chicken, etc. The factors for converting product weight to carcass-weight equivalent are based on studies of the relative weights of carcass components, where composition is considered by type of cut and by the shares of muscle, bone, and fat in these parts (USDA-ERS, 1992).

Canadian exports to the United States and Mexico represented 73% and 3%, respectively, of total Canadian beef export volume in 2021 as shown in Figure 4.3.2. On a value basis, it was 76% and 4%, respectively. Over three-quarters of the total Canadian export volume to the United States and Mexico is fresh or chilled product (not frozen). Canadian beef exports to the United States are dominated by loin cuts and chuck cuts and also strong rib cut and trimmings trade.²⁹

The Canadian Boxed Beef Report included Canadian sales only except for some items that included export volumes. These items were Outside Skirt, Inside Skirt, Flapmeat, Ball Tips, Tri Tips, Lointails, Fresh 50% Lean Trimmings, Fresh 65% Lean Trimmings, Fresh 75% Lean Trimmings, Fresh 85% Lean Trimmings, and Shankmeat.³⁰ Canadian sales and export volumes of these items account for about 17% of the total load count in the Canadian Boxed Beef Report. The data is unavailable to calculate the percentage that is represented by Canadian sales versus North American exports.

Table 4.3.1 provides the total load count of Canadian fresh or chilled and frozen beef exports to the United States and Mexico. Recall, from Table 4.2.1 actual load counts have generally been below the load counts needed to be 90% certain the carcass cutout price was not more than \$0.01/lb. in error. Assuming the export trade met the remaining criteria for Canadian wholesale beef reporting (i.e., negotiated with delivery within 0-21 days, etc.), only about 1.0% of the fresh or chilled exports to the United States and Mexico would be required to get to this needed level of load counts. Furthermore, if one wanted be 90% certain the carcass cutout price was not more than \$0.005/lb. in error only about 10% of the fresh or chilled beef exports to the United States and Mexico would be needed.

Table 4.3.1 Loads of Beef Exported to the United States and Mexico and Available to be Captured and Added to Canadian Boxed Beef Reporting

	2015	2016	2017	2018	2019	2020	2021
<u>Fresh or Chilled</u>							
USA	10,875	12,715	13,250	14,297	15,292	14,877	16,570
Mexico	706	639	673	667	733	629	839
USA & MX	11,581	13,354	13,923	14,964	16,025	15,506	17,409
<u>Frozen</u>							
USA	738	723	674	634	656	691	1,278
Mexico	12	12	10	13	9	16	5
USA & MX	750	735	683	647	665	707	1,283

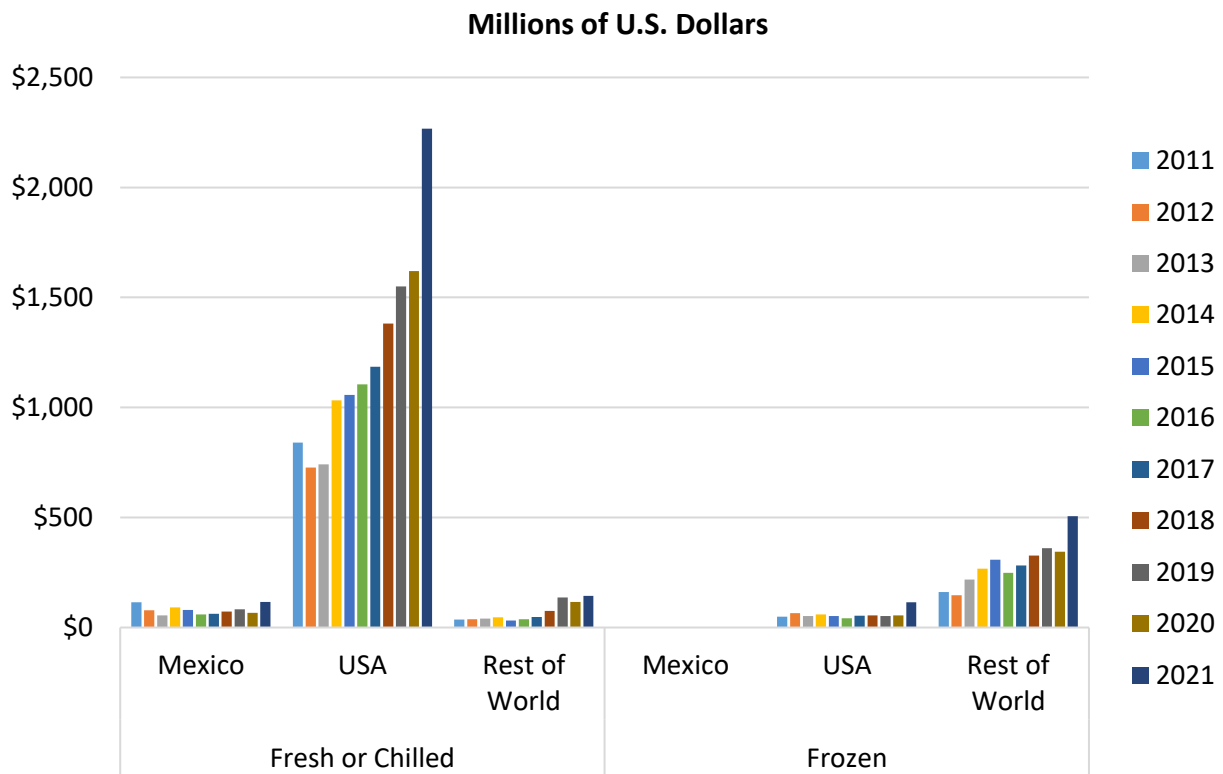
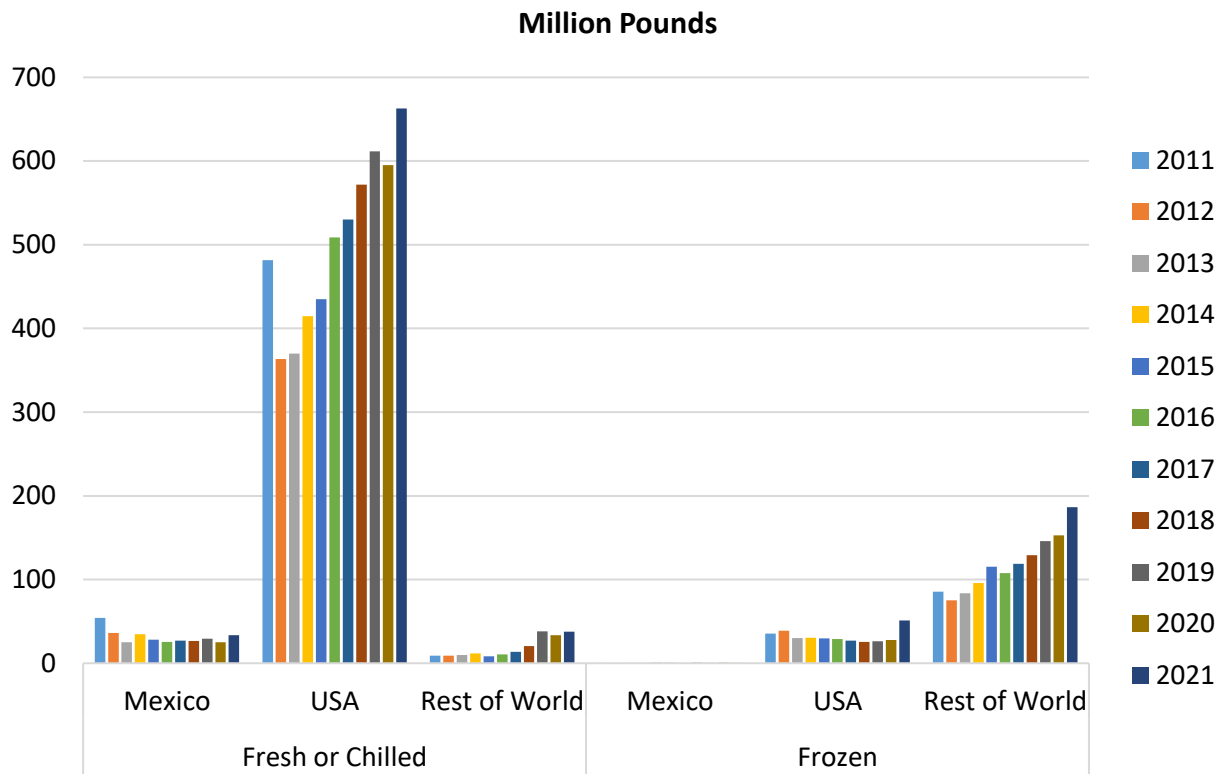
Data source: Data source: UN Comtrade DataBase.

Notes: One load count = 40,000 pounds.

²⁹ Harmonized (HS-10) codes (<https://hts.usitc.gov/?query=beef>) include 0201.30.50.45 (BFBLQ,XPFC,LOIN), 0201.30.50.35 (BFBLQ,XPFC,CHKCT), 0201.30.50.25 (BFBLQ,XPFC,RIBCT), and 0201.30.50.85 (BFBLQ,XPFC,CTNES), respectively.

³⁰ Harmonized (HS-10) codes (<https://hts.usitc.gov/?query=beef>) include 0201.30.50.85 (BFBLQ,XPFC,CTNES), 0202.30.50.85 (BFBLQ,XPFC,CTNES), 0201.20.50.85 (BFBIQ,XPFC,CTNES), and 0202.20.50.85 (BFBIQ,XPFC,CTNES).

Figure 4.3.2. Canadian Exports, Meat of Bovine Animals, 2011-2021



Data source: UN Comtrade DataBase.

4.4. PRICE INDICES

Numerous uses can be made of published prices of individual beef products. However, the price level is secondary to measuring price changes. Therefore, even biased prices can provide a viable measure of price changes for use in an index assuming the bias is consistent. To collect sufficient prices to publish detailed price reports can require large sample sizes. Data availability and collection costs can exceed available resources. A price index is a tool that simplifies the measure of movements in a price series.³¹

A price index measures the change in prices from some reference point, or base period, to another point in time. Ideally the base period is one not impacted by inflation or supply chain disruptions. The closer the base period is to the current time, the more value an index may have in predicting future trends. The index reference point is generally one year but can span multiple years. For example, federal U.S. law requires USDA to maintain the prices paid and prices received index series using the 1910-1914 base period for parity price purposes. Updates use more recent base reference periods. The 2011 base year (2011=100) is the most recent.³² Prices received statistics for crops and livestock are used in the calculation of key economic indicators for the U.S. farm sector (e.g., farm income, commodity costs and returns and farm sector productivity), U.S. and world supply and demand estimates, the calculation of the parity ratios, and other purposes. Because prices received statistics are at an aggregate level (i.e., meat animals, cattle, hogs, dairy, and poultry and eggs) and only reported monthly, they are not intended for short-term marketing decisions. For that purpose, USDA-AMS Market News daily and weekly reports are more useful.

Movements of an index from one period to another can be expressed as changes in index values. Using the percent change of an index is more useful to express the movements of the price level. This is because index values are affected by the level of the index in relation to its base period, while percent changes are not. Any price index measures changes in prices only. They do not measure changes in revenues or expenses, which are calculated as prices multiplied by quantities. The collection of prices must be planned so that differences between the prices of any two dates will reflect changes in price and price alone (Parcell and Tonsor, 2017). There are several methodologies for computing a price index (Akem and Opryshko, 2014; Diewert, 2021). The simplest index of price at time t is of the form:

³¹ For example, the U.S. Bureau of Labor statistics publishes producer price indices (e.g., 311612311612A1—meat processed from carcasses-Boxed meat (beef, pork, lamb, etc.), made from purchased carcasses), not actual or average prices. Actual transaction prices are used in the calculation of the indices but actual prices are not published because they are provided on a voluntary and confidential basis by survey respondents.

³² The *Agricultural Prices* report (<https://usda.library.cornell.edu/concern/publications/c821gj76b?locale=en>) contains prices received by producers for principal crops, livestock and livestock products; indexes of prices received by producers; feed price ratios; indexes of prices paid by producers; and parity prices.

$$\text{Simple Index of Price}_t = \frac{\frac{1}{q_t} \sum_i P_{it} \cdot q_{it}}{\frac{1}{q_0} \sum_i P_{i0} \cdot q_{i0}} = \frac{\sum P_t}{\sum P_0}$$

where, q_{it} is the market share of the i th firm in the current period t , subscript 0 represents the base period, and $q_t = \sum q_{it}$ and $q_0 = \sum q_{i0}$. P_{it} represents the prices in the current period and P_{i0} represents the prices in the base period.

The challenge with using the simple index as a replacement for a “published” beef item price is that a base price period must be provided, which could disclose information related to P_0 and q_0 . This allows for any entity to quite easily use a current index to back into the current price (P_t), i.e., reverse engineer the information to possibly disclose confidential information. An alternative index computation, the Lowe Index, takes the form:³³

$$\text{Lowe Index of Price}_t = \frac{\frac{1}{q} \sum_i P_{it} \cdot q_{is}}{\frac{1}{q} \sum_i P_{i0} \cdot q_{is}} = \frac{\sum P_t}{\sum P_0}$$

where, q_{is} is the market share of the i th firm in period s and $q = \sum q_{it}$. P_{it} represents the price in the current period and P_{i0} represents the price in the base period 0. The advantage with the Lowe index is that the volume weight (e.g., pounds or loads) share (q_{is}) assigned to a firm price is tied to an arbitrary period of time. The chosen volume weights could be suppressed from public viewing.

The advantage of this particular index is that one can provide the base period price (P_0) as a reference point, suppress the firm share weights used, and utilize the current index without the ease of reverse engineering the current price (P_t). Also, one will be able to provide the current number of loads because the current period loads are not used in computing the current period price. The downside is that a period from which to derive the firm loads to compute market share weights must be selected. This is a subjective decision that would need to remain in place over time. We offer an example using LMR data. Assumptions and computational process, for this example, include:

1. Looking at Choice prices for negotiated (LM_XB459), formula (LM_XB455), and forward contract (LM_XB456) “loin, strip, bnls, 0x1 (180 3)” for the period week ending January 6, 2017 through week ending October 14, 2022.
2. Use the period January 2017 through December 2017 as the base pricing period.

³³ The consumer price index from Statistics Canada (<https://www150.statcan.gc.ca/n1/pub/62-553-x/2014001/chap/chap-6-eng.htm>) is a Lowe index.

3. Assume there are three firms in this market during the base period. For demonstration purposes, negotiated sales represent one firm, formula sales represent another firm, and forward contract sales represent the third firm. Then select an alternative set of dates, say the first 26 weeks of 2018, to determine the three firms have a market share trade in this beef item of: 26.6%, 57.7%, and 16.7%.
 - a. Note, the share weights would be suppressed from the public. Only the publisher of the index will know these weights.
 - b. The share weights always remain the same except for when firms do not report trade. If any firm reports no trade, the weighting matrix will adjust accordingly.
 - i. If only one firm reports, then the index will need to be suppressed due to confidentiality. This would be the same as if there was no high-low price range provided for a particular cut and Canfax would suppress the product price in the Canadian Boxed Beef Report.
4. Using the information from 2. and 3. the base period price is \$5.82/lb.
 - a. Note, this will differ from the actual weighted average price computed of \$5.87/lb. because the share weights will differ.
5. Moving forward to the week ending October 14, 2022, the price is computed as \$5.63/lb.
 - a. Note, this will differ from the actual weighted average price of \$5.61/lb. because the index uses the share weights from 3. in computing the weighted average price.
6. The index is computed as $\$5.63/\$5.82 \times 100 = 96.74$. This is 96.74% of the base period price week ending October 14, 2022.
 - a. A user of this data would take the published 96.74 index to know that the price of “loin, strip, bnls, 0x1 (180 3)” is, on average, 96.74% of the base price period. So, the price is 96.74% of \$5.82, or \$5.63.

A price index may be a feasible option for some beef items if a minimum level of wholesale beef reporting volume could be maintained voluntarily. Though this option would likely take considerable industry education such as a detailed user guide accompanying the published indices.

4.5. SUPPLEMENTING CANADIAN VOLUNTARILY REPORTED INFORMATION WITH LMR

The CME Group launched a Boxed Beef Index on March 5, 2021.³⁴ The index is a five-business-day, volume-weighted moving average of daily Choice and Select cutout values. CME said the index “will provide a benchmark price that both producers and end users of beef can use to track and forecast price.” To calculate the index, CME uses data collected by USDA's Agricultural Marketing Service and published in the National Daily Boxed Beef Cutout and Boxed Beef Cuts

³⁴ <https://www.cmegroup.com/trading/agricultural/livestock/cme-boxed-beef-index.html>.

Negotiated Sales–Afternoon (LM_XB403) report. USDA has provided those data, in their current form, since 2004. Market participants who see value in such an index may already be calculating something like it or using the USDA boxed beef cutout data directly.

While the CME Group calls this calculated series a boxed beef index, it simply is a weighted average price series. With this as a precedent, we consider the option of supplementing voluntary reported Canadian wholesale beef market information with LMR information. This would add volume to Canadian Boxed Beef reports but would preclude U.S. and Canadian boxed beef value comparisons. Prior to 2003-2004 U.S. boxed beef cutout values, reported by the USDA-AMS, converted to Canadian dollars were used as an estimate of the value of Canadian beef carcasses. So, combining Canadian and U.S. information would be a hybrid approach between the early years of calculating boxed beef prices in Canadian dollars and the last 15 plus years of the Canadian Boxed Beef Report.

To determine how price information would be affected by aggregating voluntarily reported Canadian wholesale beef market information with LMR information, we evaluated how price levels would be impacted for the 2013 to week ending March 20, 2020 period for a select number on AAA products. We chose two products from each of the chuck, rib, loin, and round primals and products where no high-low price range for a particular week often precluded publishing a price. Table 4.5.1 reports summary statistics for Canadian prices and weighted average composite Canadian and U.S. prices, and t-tests of mean differences in prices. Paired t-tests are used because the price comparisons are not independent, a natural pairing of the price series exist as the Canadian price is contained in the Canadian and U.S composite. The paired t-test is more appropriate than a simple test of means because it takes correlation into account. Using this correlation results in higher power to detect existing differences between the means.

Findings for price differentials across cuts are mixed, as some composite prices have higher values and others have lower values, while one composite price, AAA “Chuck Roll” and Choice “Chuck, roll, lxl, neck/off (116A 3),” shows no statistical difference compared to the Canadian price. However, other mean prices differ between -\$0.3340/lb. to \$0.1461/lb. and are statistically different. Table 4.5.1 also shows Pearson correlation coefficients between each Canadian price and weighted average Canadian and U.S. composite. All correlations are statistically significant at the 99% level of confidence.

While this approach would add volume to Canadian Boxed Beef Reports, if only one Canadian firm reports, then the price will need to be suppressed due to confidentiality. If not, using the U.S. price and load count and Canadian load count, one could solve for the Canadian price. This would be the same as if there was no high-low price range provided for a particular cut and Canfax would need to suppress the product price in the Canadian Boxed Beef Report. Furthermore, this option might cause confusion as to how much contribution is from LMR and from Canadian voluntary information as the relative weighting would differ by beef item due to differences in load counts.

Table 4.5.1. Summary Statistics for Canadian Price and Weighted Average Canadian and U.S. Composite Price, Select AAA Products, 2011 - March 2020

Price	N	Loads	Mean	Std Dev	Min	Max	Mean Difference ¹	Pr > t	Correlation Coefficient	Pr > t
<u>AAA Chuck Roll & Choice Chuck, roll, lx, neck/off (116A 3)</u>										
Canadian	470	3,237	3.2179	0.7173	1.7920	5.0320				
Canadian & U.S.	470	14,875	3.2173	0.7017	1.8059	4.7526	-0.0006	0.9221	0.9812	<0.0001
<u>AAA Short Cut Shoulder Clod & Choice Chuck, shoulder clod, trmd (114A 3)</u>										
Canadian	464	767	2.77	0.481	1.91	4.35				
Canadian & U.S.	464	10,592	2.65	0.481	1.77	4.68	-0.1248	<0.0001	0.9117	<0.0001
<u>AAA Boneless Lipon Ribeye 14 up & Choice Rib, ribeye, bnls, heavy (112A 3)</u>										
Canadian	468	289	8.4170	1.9093	4.6076	14.0700				
Canadian & U.S.	468	5,858	8.5475	2.0607	4.5728	13.7710	0.1305	<0.0001	0.9462	<0.0001
<u>AAA Bone-in Lipon Ribeye 17 dn & Choice Rib, ribeye, lip-on, bn-in (109E 1)</u>										
Canadian	465	911	7.3363	1.6113	4.1122	12.4100				
Canadian & U.S.	465	7,315	7.5845	1.7367	4.1687	12.1834	0.2482	<0.0001	0.9271	<0.0001
<u>AAA Short Loin 1x0 & Choice Loin, short loin, 0x1 (174 3)</u>										
Canadian	469	321	6.7272	1.3520	4.0626	10.6116				
Canadian & U.S.	469	5,410	6.3932	1.3171	3.8547	10.3121	-0.3340	<0.0001	0.9204	<0.0001
<u>AAA PSMO Tenderloin & Choice Loin, tndrlain, trmd, heavy (189A 4)</u>										
Canadian	470	1,894	11.6060	1.8421	5.9832	15.9330				
Canadian & U.S.	470	8,061	11.7701	2.0254	7.1968	17.0962	0.1641	<0.0001	0.9587	<0.0001
<u>AAA Inside Round & Choice Round, top inside round (168 3)</u>										
Canadian	470	2,492	2.8043	0.4745	1.9263	3.9860				
Canadian & U.S.	470	13,736	2.7429	0.4990	1.8660	4.4109	-0.0613	<0.0001	0.9688	<0.0001
<u>AAA Peeled Knuckle & Choice Round, knuckle, peeled (167A 4)</u>										
Canadian	470	1,892	3.0269	0.5642	2.0500	4.3000				
Canadian & U.S.	470	11,673	2.9450	0.5482	1.9495	4.2112	-0.0819	<0.0001	0.9379	<0.0001

Notes: ¹ The paired t-test only use cases that have non-missing values for both variables.

4.6. POSSIBLE AVENUES FOR INCREASING PACKER REPORTING

Price discovery is a time consuming and costly activity (Schroeder and Ward, 2006). Individual buyers and sellers have search costs in the price discovery process that include collecting and analyzing market fundamentals and finding a party to trade with in order to arrive at a price reflecting uncertain market conditions. Publicly available price and quantity data and developing market fundamentals significantly reduce search costs. Reliable market information reveals supply and demand fundamentals and communicates information to otherwise uninformed market participants. This information is a public good meaning that everyone individually uses it freely and regardless of how many people access market information, the amount available remains the same. Because of this characteristic of market information its value is difficult to measure for each user. Each user, in turn, has difficulty placing a value on ensuring its timeliness, accuracy, etc. This suggests that from a public perspective, individual firms would underinvest in information collection and reporting relative to the public value of such efforts. Therefore, in the United States, the cost of market information (i.e., LMR) has been borne in large part by taxpayers rather than relying on the private sector. That is not to overlook, however, successful voluntary market information reporting efforts.

In the United States, by far the most frequently binding rule for maintaining confidentiality of reported fed cattle information used by USDA in LMR tends to be at least 3 reporting entities needing to provide data at least 50 percent of the time over the most recent 60 day time period. This is especially the case when reports are disaggregated into specific regions (e.g., Colorado) for a sale type such as negotiated cash trade. In some ways, the Canadian beef industry might have similar structure with the market structure of Colorado so this could be roughly a model to compare with. Unless some smaller plants in addition to the two majors located in Colorado were subject to LMR, the two major plants in Colorado (JBS in Greeley and Cargill in Ft. Morgan) would never meet confidentiality guidelines for publishing wholesale beef market information. This information can be aggregated and published at the regional or national level but not at the state level.

In the United States, price reporting for cattle is based on origin of cattle, and not the location of the plant, so because Colorado origin cattle may be sold to packing entities located in other states, confidentiality may be able to be assured for fed cattle purchases at times in certain categories (it rarely is met for cash negotiated). However, it would not be met for beef sales since only two plants would be represented if beef sales were reported regionally just for Colorado. The United States reports boxed beef information nationally so this is not an issue. However, it would remain an issue in Canada if no more than two plants reported beef prices. If Canada cannot get more than two plants to regularly participate, confidentiality cannot be assured—the two entities would always be able to reverse engineer reported price data to identify the prices of their sole competitor. As such, the only way to achieve, and maintain, confidentiality is to get more plants involved in reporting. If individual plants do not sell sufficient products daily, or weekly, to be included in reported data, adding more days or weeks to make the reporting a rolling time period may be a solution. A question to ask is, if the report were two-week rolling, would more plants be represented? Furthermore, if plants do not sell

sufficient individual products, but individual products can be aggregated together so a composite carcass cutout value is at least reportable and perhaps some primals (if not all) could be reported, whether using a single or rolling time period, this might attain confidentiality.

One approach for encouraging voluntary reporting commitments from packers in Canada could be to compensate them for the cost of participating in the program. For example, startup and maintenance costs, record keeping costs, and data submission costs could be cost shared between packers and the Canadian government. It is important to note that there will likely be some learning by doing and costs would likely decline over time.

Alternatively, to help persuade the voluntary reporting of wholesale beef market information, an assurance contract, suggested by Tabarrok (1998), could be utilized to achieve cooperation among beef packers. An assurance contract says “I am willing to commit to X if Y others do the same.” In the case of wholesale beef market information reporting, a beef packer commits to reporting if all other beef packers, that also meet a certain criteria, make the same commitment. If not all the beef packers that meet the criteria sign the contract it has no effect. If all the beef packers that meet the criteria, or more, sign the contract, it goes into effect and all beef packers who signed it are expected to report wholesale beef market information. Assurance contracts, at least in theory, are useful where collective action is needed and individual actions are for some reason risky or not worth it for an individual if they end up participating alone or as part of a too small of group. Whether an assurance contract among beef packers would be successful in Canada to provide viable data to conduct market information reporting, we do not know.

A mandatory reporting system is an alternative to an assurance contract and it is not subject to individual participants ignoring the agreement without consequence. In Canada, with the small number of packing companies represented, an assurance contract relies critically upon all to always abide and with no enforcement this can quickly become problematic. In contrast, a mandated system assures all regularly participate. In the United States, the LMR Act of 1999 specifies what constitutes a violation such as failure to report the required information on time or failure to report accurate information. The section on enforcement provides for a civil penalty of up to \$10,000 for each violation and provides for the Secretary’s issuance of cease and desist orders. The Livestock, Poultry and Grain Market News Division of USDA ensures compliance with the law. The division’s compliance staff audit covered packers, and the division’s market reporting staff evaluates this information to ensure conformance with the LMR Act of 1999, regulations, and policies.³⁵ Each covered packer is audited a minimum of once every six months.³⁶ If non-compliance is found, it is assigned a level of designation indicating its severity. Major non-compliance would be a covered plant does not submit information or inadvertently submits incorrect information that affects the accuracy of published reports with

³⁵ LMR Compliance Questions and Answers, <https://www.ams.usda.gov/rules-regulations/mmr/lmr/compliance/FAQ>.

³⁶ LMR Compliance Audit Process, <https://www.ams.usda.gov/sites/default/files/media/LMR%20Audit%20Process%20Flowchart.pdf>.

examples including an issue that can be replicated due to programming errors; a replicated issue that causes inaccurate data submitted on published reports; a plant failing to submit files; or a plant is consistently submitting late or inaccurate files. Minor non-compliance would be a covered plant does not submit information in compliance with applicable rules and regulations, but their submission or incomplete submission has minimal effect on the accuracy of published data. Examples include a typo, data entry error or some other issue that is not readily replicated or the plant is inadvertently submitting inaccurate data that has no effect on published reports (i.e., the data is not utilized in reports).

A mandatory approach would require more standardized reporting, collection, summarizing, and publishing of wholesale beef trade information than is required under a voluntary approach. Furthermore, a standard process, that is automated, would go a long way in reducing the need to make “on the fly” changes as personnel change (i.e., vacations, sick leave, personal leave, employee turnover, promotions, etc.) and other circumstances occur (i.e., change in business hours, planned or unexpected maintenance, holidays, etc.). For example, under LMR in the United States, “whenever information is required to be reported under this part, it shall be reported by electronic means and shall adhere to a standardized format established by the Secretary to achieve the objectives of this part, except in emergencies or in cases when an alternative method is agreeable to the entity required to report and AMS” (e-CFR, 2008).

Imbalances in market power between buyers and sellers can impact wholesale beef prices. However, potential adverse impacts of market power imbalances are greatly reduced by complete market information flow (Schroeder and Ward, 2006). Increased reporting, be it voluntary or mandatory, would result in more market information being available which increases the efficiency of the market. This would likely benefit smaller firms more than large firms. Large firms have considerable private information about their own fed cattle purchases and wholesale beef sales.

CHAPTER 5. SUMMARY OF RECOMMENDATIONS UNDER CURRENT SYSTEM

Our recommendations are framed with the goal of providing as much market information as feasible under the current (voluntary) reporting system. More extensive recommendations are highlighted throughout the report such as packers and government sharing reporting costs, assurance contracts to persuade reporting, and moving to a mandatory reporting system. Implementing these more extensive recommendations are beyond the scope of this study. The following recommendations are not necessarily mutually exclusive. Combinations could be considered.

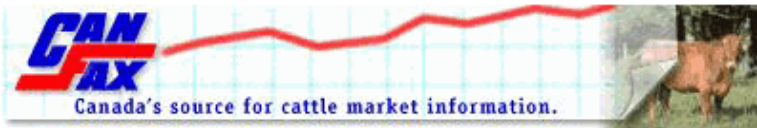
- Move to a Canadian Comprehensive Boxed Beef Report. This would include only fed steer/heifer beef (no cow/bull or blended cow/bull/ steer/heifer product), AAA and AA grades, all sales types (negotiated sales 0-21 day delivery, negotiated sales 22+ day delivery, formula, and forward contract), all delivery periods (0-21 days, 22-60 days, 60-

90 days, and 91 days and up), and all delivery locations (domestic sales and exports), and branded and unbranded product.

- Include beef sales destined for United States or Mexico, beyond the few items (i.e., trim, etc.) that are already included.
- Include beef × dairy product sales.
- Aggregate across reporting categories so a composite carcass cutout value is at least reportable and perhaps some primals, if not all, could be reported for individual plants.
- Add more days or weeks to make reporting a rolling time period, e.g., two-week rolling, to allow individual plants that do not sell sufficient products daily, or weekly, to be included in reported data.

Because the Canadian beef industry is undergoing considerable structural change in numerous aspects from the ways cattle are purchased and beef sold by packers to the number, size, and location of beef packers, we recommend continued assessments of how to potentially report and publish wholesale beef market information be done periodically. The pace of change in the beef market is rapid and institutions responsible for wholesale beef market information reporting (i.e., Canfax, Agriculture and Agri-Food Canada, Canadian beef packing plants) need to be able to assess and adjust reporting and publishing as the market environment changes.

Appendix A.1. The Canadian Boxed Beef Report, Week Ending Friday, March 20, 2020



Canadian Boxed Beef Prices

The data used in the Canadian Boxed Beef Report is provided by the Agriculture and Agri-Food Canada (AAFC). It is based on negotiated prices and volume of boxed beef cuts and on average industry cutting yields. Values reflect CDN dollars per pound.

Week ending: Friday, March 20, 2020 Exchange Rate: 1.4495

	Canadian AAA			Canadian AA/A		
	This Week	Last Week	Last Year	This Week	Last Week	Last Year
CHUCK	\$2.6581	\$2.2964	\$2.3443	\$2.6045	\$2.2426	\$2.2705
RIB	\$4.9666	\$4.1016	\$4.5616	\$4.4776	\$4.0995	\$4.3470
LOIN	\$3.7523	\$3.6660	\$3.7057	\$3.6084	\$3.4849	\$3.4748
ROUND	\$2.5049	\$2.2607	\$2.2997	\$2.7671	\$2.3293	\$2.2970
BRISKET	\$2.2490	\$2.1769	\$2.4025	\$2.2490	\$2.1769	\$2.4025
SHORT PLATE	\$1.9894	\$1.8799	\$2.1858	\$1.9894	\$1.8799	\$2.1858
FLANK	\$1.5232	\$1.4375	\$1.5014	\$1.5232	\$1.4375	\$1.5014






	USDA Choice	Canadian AAA		USDA Select	Canadian AA			
	This Week (CDN\$)	This Week	Last Week	Last Year	This Week (CDN\$)	This Week	Last Week	Last Year
Carcass Cutout	\$ 3.5227	\$3.0139	\$2.7211	\$2.8399	\$ 3.3795	\$2.9703	\$2.6818	\$2.7439
Load Count Totals		154.71	124.02	192.51				

AAA Product







	CS	CS(Last Wk)	CS(Last Yr)	US\$	In C\$	Cdn-US Diff\$	Cdn Loads
Quebec Spec	n/a	n/a	n/a				
Semi-Boneless	+++	+++	+++	\$ 2.8007	\$ 4.0596	\$ -0.1496	0.15
Short Cut shoulder clod	+++	+++	+++	\$ 3.2260	\$ 4.6761	\$ -1.5461	0.01
Clod Heart	n/a	n/a	n/a	\$ 3.3308	\$ 4.8280		
Clod Tender	+++	+++	+++	\$ 3.9107	\$ 5.6686	\$ -2.1186	0.15
2 Piece Boneless Chuck	n/a	n/a	n/a				
Chuck Roll	+++	+++	+++	\$ 3.2637	\$ 4.7307	\$ 0.3013	2.57
Chuck Roll 0x0	n/a	n/a	n/a				
Oven Ready Rib	n/a	n/a	+++				
Bone-in Lipon Ribeye 17 up	n/a	n/a	n/a	\$ 7.1033	\$ 10.2962		
Bone-in Lipon Ribeye 17 dn	+++	+++	+++	\$ 7.1033	\$ 10.2962	\$ -0.4462	2.83
Boneless Lipon Ribeye 14 up	+++	+++	+++	\$ 8.0799	\$ 11.7118	\$ -1.5618	0.32
Boneless Lipon Ribeye 14 dn	n/a	n/a	n/a	\$ 8.2296	\$ 11.9288		
Back Ribs	+++	n/a	+++				0.01
Short Loin 1x0	\$ 7.4576	\$ 7.3289	\$ 7.5595	\$ 5.9138	\$ 8.5721	\$ -1.1145	0.33
Striploin 0x1 13up	\$ 8.4324	\$ 7.7905	\$ 8.1312	\$ 6.1933	\$ 8.9772	\$ -0.5448	8.69
Striploin 0x1 13dn	n/a	n/a	n/a	\$ 6.1933	\$ 8.9772		

Top Butt 13up	\$ 4.6066	\$ 4.2181	\$ 4.1889	\$ 3.2994		\$ 4.7825	\$ -0.1759	4.14
Top Butt 13dn	n/a	n/a	n/a	\$ 3.2994		\$ 4.7825		
PSMO Tenderloin	\$ 12.3587	\$ 12.5014	\$ 12.8127	\$ 8.1109		\$ 11.7567	\$ 0.6020	4.83
Butt Tenderloin	\$ 12.1377	+++	\$ 12.4964	\$ 8.8950		\$ 12.8933	\$ -0.7556	0.27
Boneless Round	n/a	n/a	n/a					
Inside Round 1"	n/a	n/a	n/a	\$ 2.8453		\$ 4.1243		
Inside Round	\$ 3.9308	\$ 3.3395	\$ 2.8991	\$ 3.0431		\$ 4.4110	\$ -0.4802	8.65
Outside Flat	\$ 3.6552	\$ 3.1938	\$ 3.1787	\$ 2.7524		\$ 3.9896	\$ -0.3344	3.36
Eye of round	\$ 3.9116	\$ 3.7198	\$ 3.7468	\$ 3.1627		\$ 4.5843	\$ -0.6727	6.13
Peeled Knuckle	+++	+++	+++	\$ 2.8457		\$ 4.1248	\$ -0.6448	3.73
Gooseneck	n/a	n/a	n/a	\$ 2.5041		\$ 3.6297		
AA Product								
	CS	CS(Last Wk)	CS(Last Yr)	US\$		In CS	Cdn-US Diff\$	Cdn Loads
Quebec Spec	n/a	n/a	n/a					
Semi-Boneless	n/a	n/a	n/a	\$ 2.8652		\$ 4.1531		
Short Cut shoulder clod	+++	+++	+++	\$ 3.1485		\$ 4.5638	\$ -1.4338	0.01
Clod Heart	n/a	n/a	n/a					
Clod Tender	+++	+++	+++	\$ 3.8161		\$ 5.5314	\$ -0.2814	0.03
2 Piece Boneless Chuck	n/a	n/a	n/a					
Chuck Roll	+++	+++	+++	\$ 3.2850		\$ 4.7616	\$ 0.0578	0.51
Chuck Roll 0x0	n/a	n/a	n/a					
Oven Ready Rib	n/a	n/a	n/a					
Bone-in Lipon Ribeye 17 up	+++	+++	+++	\$ 5.9227		\$ 8.5850	\$ 0.3450	4.61
Bone-in Lipon Ribeye 17 dn	+++	+++	+++	\$ 5.9227		\$ 8.5850	\$ -0.4733	3.57
Boneless Lipon Ribeye 14 up	+++	+++	+++	\$ 6.9881		\$ 10.1293	\$ -1.2993	0.45
Boneless Lipon Ribeye 14 dn	n/a	n/a	n/a	\$ 6.9086		\$ 10.0140		
Back Ribs	n/a	+++	+++					
Short Loin 1x0	\$ 6.6601	\$ 6.5307	\$ 7.1189	\$ 5.0609		\$ 7.3358	\$ -0.6757	0.98
Striploin 0x1 13up	\$ 7.6674	\$ 6.7292	\$ 6.8353	\$ 5.0792		\$ 7.3623	\$ 0.3051	5.41
Striploin 0x1 13dn	n/a	n/a	n/a	\$ 5.0792		\$ 7.3623		
Top Butt 13up	\$ 4.6311	\$ 4.2270	\$ 3.9592	\$ 3.3135		\$ 4.8029	\$ -0.1718	8.55
Top Butt 13dn	n/a	n/a	n/a	\$ 3.3135		\$ 4.8029		
PSMO Tenderloin	\$ 11.9682	\$ 12.0513	\$ 12.0116	\$ 8.0571		\$ 11.6788	\$ 0.2894	7.51
Butt Tenderloin	\$ 12.1323	+++	\$ 11.5321	\$ 8.6630		\$ 12.5570	\$ -0.4247	0.13
Boneless Round	n/a	n/a	n/a					
Inside Round 1"	n/a	n/a	n/a	\$ 2.8444		\$ 4.1230		
Inside Round	\$ 4.5726	\$ 3.5991	\$ 3.0047	\$ 3.3214		\$ 4.8144	\$ -0.2418	12.38
Outside Flat	\$ 4.1367	\$ 3.2210	\$ 3.0474	\$ 2.9441		\$ 4.2675	\$ -0.1308	9.17
Eye of round	\$ 3.9778	\$ 3.5914	\$ 3.7378	\$ 2.9612		\$ 4.2923	\$ -0.3145	2.66
Peeled Knuckle	+++	+++	+++	\$ 2.8536		\$ 4.1363	\$ -0.4763	1.42
Gooseneck	+++	+++	+++	\$ 2.2225		\$ 3.2215	\$ -0.7849	0.01



Thin Meats (AAA/AA)

	C\$	C\$(Last Wk)	C\$(Last Yr)	US\$	In C\$	Cdn-US Diff\$	Cdn Loads
Chuck Tender	\$ 3.7095	\$ 3.5131	\$ 3.2436	\$ 2.7125 	\$ 3.9318	\$ -0.2223	2.61
Briskets 120	\$ 3.2729	\$ 3.1753	\$ 3.4853	\$ 2.5697 	\$ 3.7248	\$ -0.4519	3.86
Bone-in Chuck Shortrib	\$ 4.3138	\$ 3.8849	\$ 4.5695	\$ 3.2136 	\$ 4.6581	\$ -0.3443	5.00
Flat Iron	\$ 3.5844	\$ 3.5020	\$ 4.4040				0.88
Blademeat	\$ 3.7568	\$ 3.2892	\$ 4.2716	\$ 2.6866 	\$ 3.8942	\$ -0.1374	2.93
Bone-in Shortrib	+++	+++	+++	\$ 4.0914 	\$ 5.9305	\$ 0.8195	0.01
Outside Skirt	+++	+++	+++	\$ 5.7331 	\$ 8.3101	\$ -0.0001	0.01
Inside Skirt	+++	+++	+++	\$ 4.2892 	\$ 6.2172	\$ 0.1240	0.01
Flapmeat	+++	+++	+++	\$ 5.7487 	\$ 8.3327	\$ -1.1327	0.02
Ball Tips	+++	+++	+++	\$ 2.6489 	\$ 3.8396	\$ -0.0001	0.01
Tri Tips	+++	+++	+++				0.03
Flank Steak	\$ 7.2371	\$ 6.8309	\$ 6.7288	\$ 5.1465 	\$ 7.4599	\$ -0.2228	1.92
Pectoral Muscle	\$ 3.8064	\$ 3.3494	\$ 4.3626	\$ 2.8319 	\$ 4.1048	\$ -0.2984	3.54
Loinails	+++	+++	n/a				0.57

Trim (AAA & AA) (Fed)

	C\$	C\$(Last Wk)	C\$(Last Yr)	US\$	In C\$	Cdn-US Diff\$	Cdn Loads
Fresh 50% Lean Trimmings	+++	+++	\$ 1.0353	\$ 0.5676 	\$ 0.8227	\$ 0.0373	0.13
Fresh 65% Lean Trimmings	+++	+++	\$ 1.7384	\$ 1.0102 	\$ 1.4643	\$ -0.1843	0.09
Fresh 75% Lean Trimmings	+++	+++	+++	\$ 1.4952 	\$ 2.1673	\$ -0.1223	0.01
Fresh 81% Lean Trimmings	+++	+++	+++	\$ 1.7574 	\$ 2.5474	\$ 0.0698	0.01
Fresh 85% Lean Trimmings	+++	+++	\$ 2.6476	\$ 1.9801 	\$ 2.8702	\$ -0.0602	2.41
Shankmeat	+++	+++	\$ 2.6476				0.01

Ground Beef

	C\$	C\$(Last Wk)	C\$(Last Yr)	US\$	In C\$	Cdn-US Diff\$	Cdn Loads
Extra Lean Ground Beef	+++	+++	+++				10.01
Lean Ground Beef	n/a	n/a	+++				
Medium Ground Beef	+++	+++	+++				14.71
Regular Ground Beef	+++	+++	+++				2.33
Ground Chuck	+++	+++	+++	\$ 3.3424 	\$ 4.8448	\$ 0.0000	0.01
Ground Sirloin	+++	+++	+++	\$ 3.6210 	\$ 5.2486	\$ 0.0000	0.01

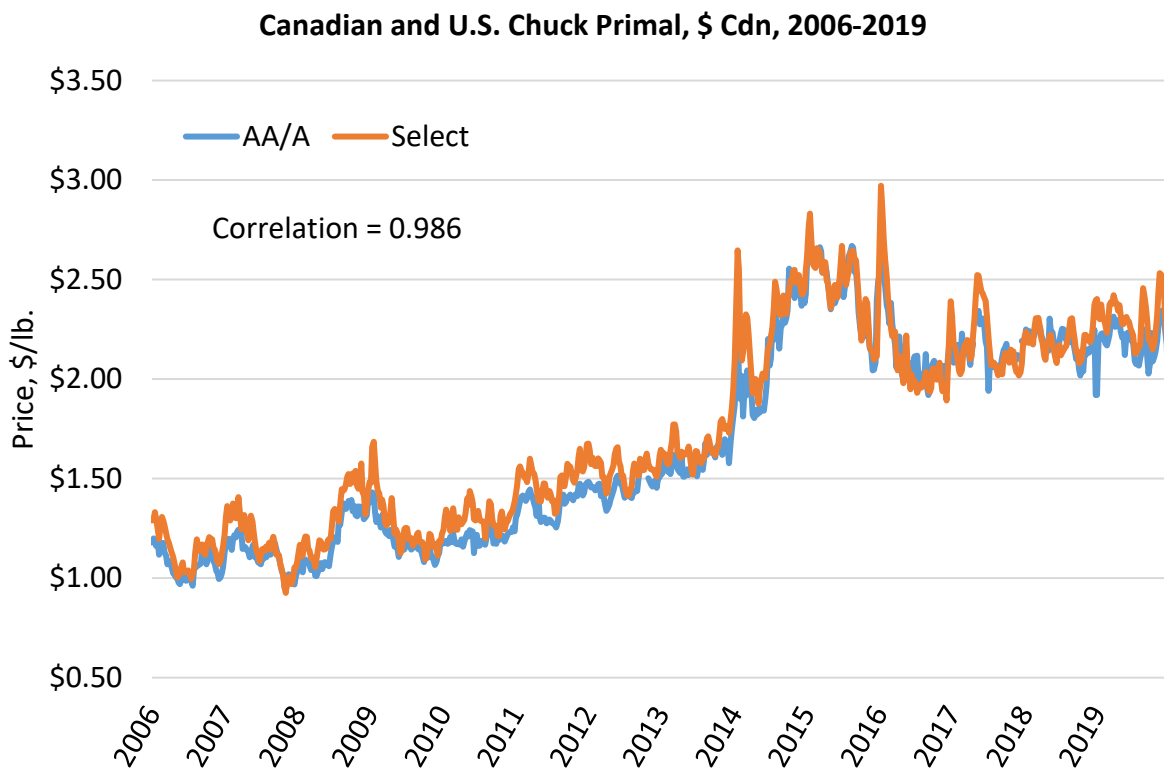
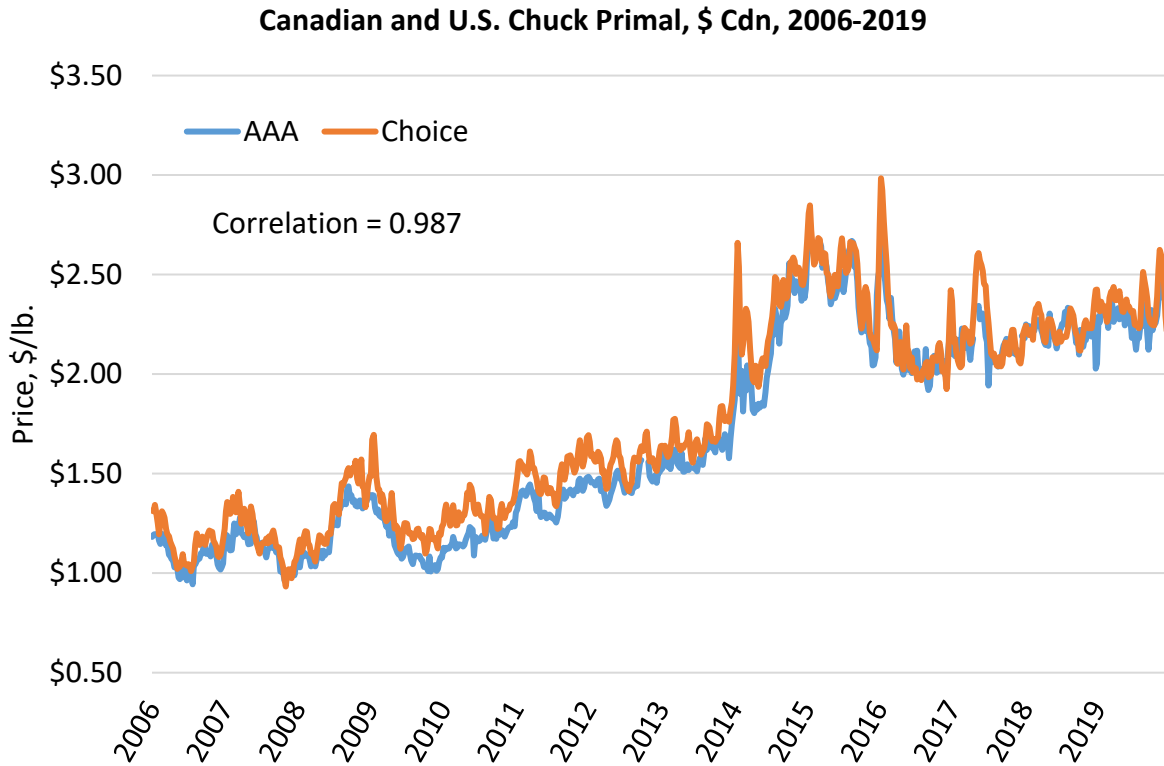
+++ This is suppressed data that is used in the primal and cutout calculation.

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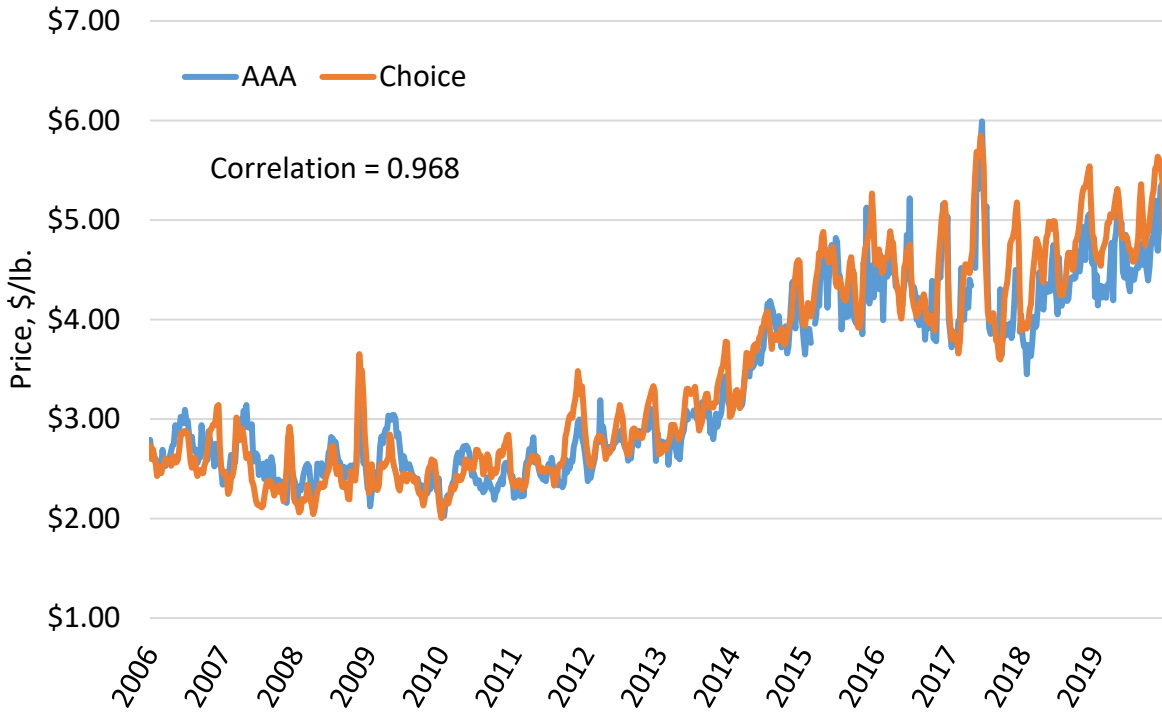
Appendix A.2. Canadian Boxed Beef Reporting Form

TOTAL WEIGHTED AVERAGE PRICES / QUANTITIES IN LOADS					WEEK:	February 22-2014			
AAA					AA/A				
	Quantity	Price \$/lb	Min Price	Max Price	Quantity	Price \$/lb	Min Price	Max Price	
Chucks									
Quebec Spec	-	-	-	-	1.10	2.8187	2.2500	2.9085	
Semi-Boneless	-	-	-	-	0.40	3.3036	2.9085	3.3600	
S/C Shoulder Clod	-	-	-	-	3.07	2.5965	2.4900	3.1186	
Clod Heart	-	-	-	-	-	-	-	-	
Clod Tender	-	-	-	-	0.81	3.5589	3.3900	3.5942	
2Pc Bls	-	-	-	-	-	-	-	-	
Blade Eye 1x1	3.35	2.9386	2.8800	3.0744	16.86	3.0476	3.0300	3.0523	
Blade Eye 0x0	-	-	-	-	-	-	-	-	
Ribs									
Oven Ready Rib	-	-	-	-	3.40	4.8700	4.8700	4.8700	
B/l Lipon 17 up	4.69	5.6838	5.6600	5.7507	4.58	5.4197	5.3800	5.7507	
B/l Lipon 17 dn	-	-	-	-	-	-	-	-	
Bls Lipon 14 up	0.32	6.6683	6.5248	7.2900	0.23	6.5270	6.5248	6.5500	
Bls Lipon 14 dn	-	-	-	-	-	-	-	-	
Back Ribs	0.01	2.3224	2.3224	2.3224	1.35	2.3224	2.3224	2.3224	
Loins									
Short Loin 1x0	0.22	6.1659	5.8613	6.3400	3.26	5.6617	5.5600	5.8613	
Striploin 1x0 13 up	5.10	5.9380	5.9200	5.9719	2.17	5.8255	5.7400	5.9719	
Striploin 1x0 13 dn	-	-	-	-	-	-	-	-	
Top Butt 13 up	10.23	3.5797	3.5389	3.6500	5.14	3.5343	3.5000	3.6495	
Top Butt 13 dn	-	-	-	-	-	-	-	-	
PSMO Tender	0.94	10.8300	10.8300	10.8300	2.66	10.4000	10.1100	10.8378	
Butt Tender	0.04	10.9889	10.8378	11.1400	0.31	10.7377	10.6900	10.8378	
Rounds									
Boneless Round	-	-	-	-	0.16	2.2300	2.2300	2.2300	
Inside Round 1"	-	-	-	-	5.17	2.7393	2.5900	2.8062	
Inside Round	2.54	2.9977	2.9859	3.0000	11.95	2.8684	2.8200	2.9271	
Outside Flat	2.10	3.0725	3.0600	3.1739	8.98	2.9825	2.8600	3.0921	
Eye of Round	3.04	3.5014	3.3300	3.7048	3.56	3.6368	3.6000	3.6863	
Peeled Knuckle	3.27	3.3100	3.3100	3.3100	3.20	3.2200	3.2200	3.2200	
Gooseneck	-	-	-	-	-	-	-	-	
Thin Meats									
			(AAA & AA / A)		Trim		(AAA & AA / A)		
Chk Tender	2.20	3.3032	2.9200	3.3177	* 50%	22.27	0.8083	0.6679	1.0900
Brisket 120	8.44	2.4972	2.4200	2.4993	* 65%	6.35	1.0572	1.0029	1.3000
BN In Chk S/R	3.64	3.6495	3.6495	3.6495	* 75%	-	-	-	-
Flat iron	0.01	3.5100	3.5100	3.5100	* 85%	12.51	1.6873	1.5529	1.7500
Blademeat	3.21	3.0978	3.0965	3.5100	* Shankmeat	-	-	-	-
BN In S/R	0.27	5.1200	5.1200	5.1200					
* Outside Skt	0.02	6.2483	6.2483	6.2483	Ground Beef				
* Inside Skt	4.12	3.9259	3.9259	3.9259	Extra Lean	1.02	2.6600	2.6600	2.6600
* Flapmeat	1.01	4.6660	4.2700	4.7001	Lean	16.28	2.4200	2.4200	2.4200
* Ball Tips	0.10	3.0200	3.0200	3.0200	Medium	3.10	2.3100	2.3100	2.3100
* Tri Tips	2.05	4.8437	3.7100	4.8549	Regular	0.85	1.9600	1.9600	1.9600
Flank Stk	2.97	4.5479	4.5100	4.5563					
Pectoral	1.88	3.0833	2.9500	3.0965	Ground Chuck	-	-	-	-
* Lointails	2.10	2.6928	2.6200	2.6984	Ground Sirloin	-	-	-	-
Cdn Sales Only Except * equals All Sales									

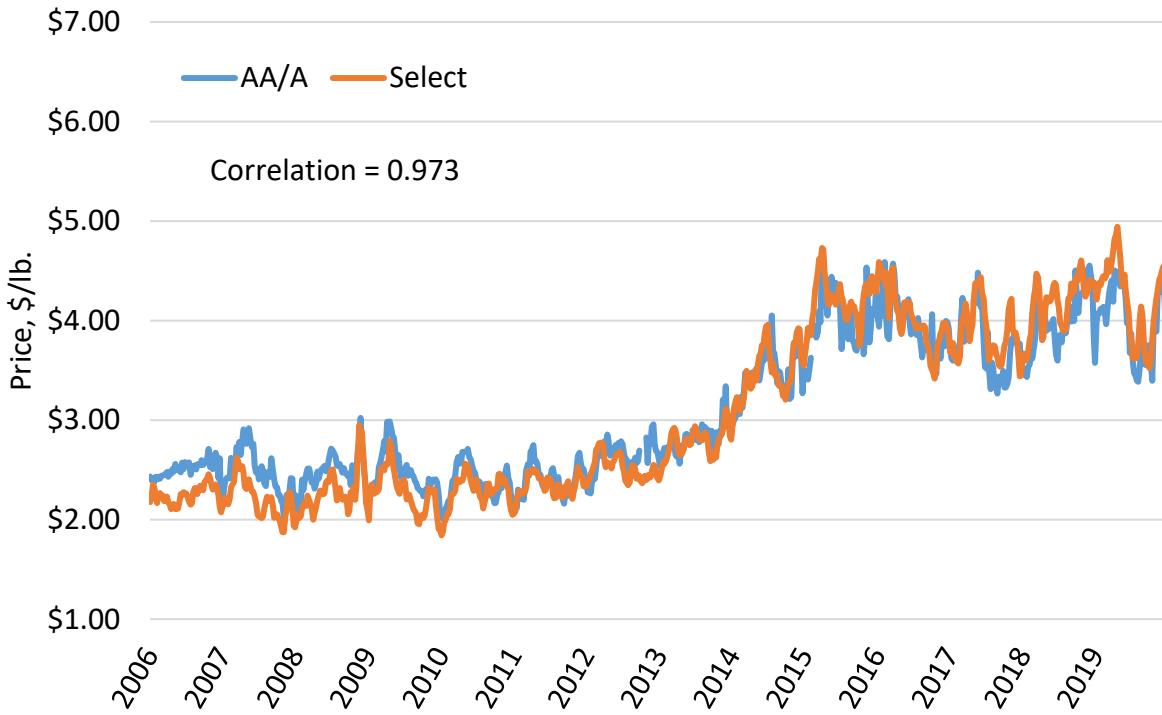
Appendix A.3. Canadian and U.S. Beef Primals, Canadian Dollars, 2006-2019



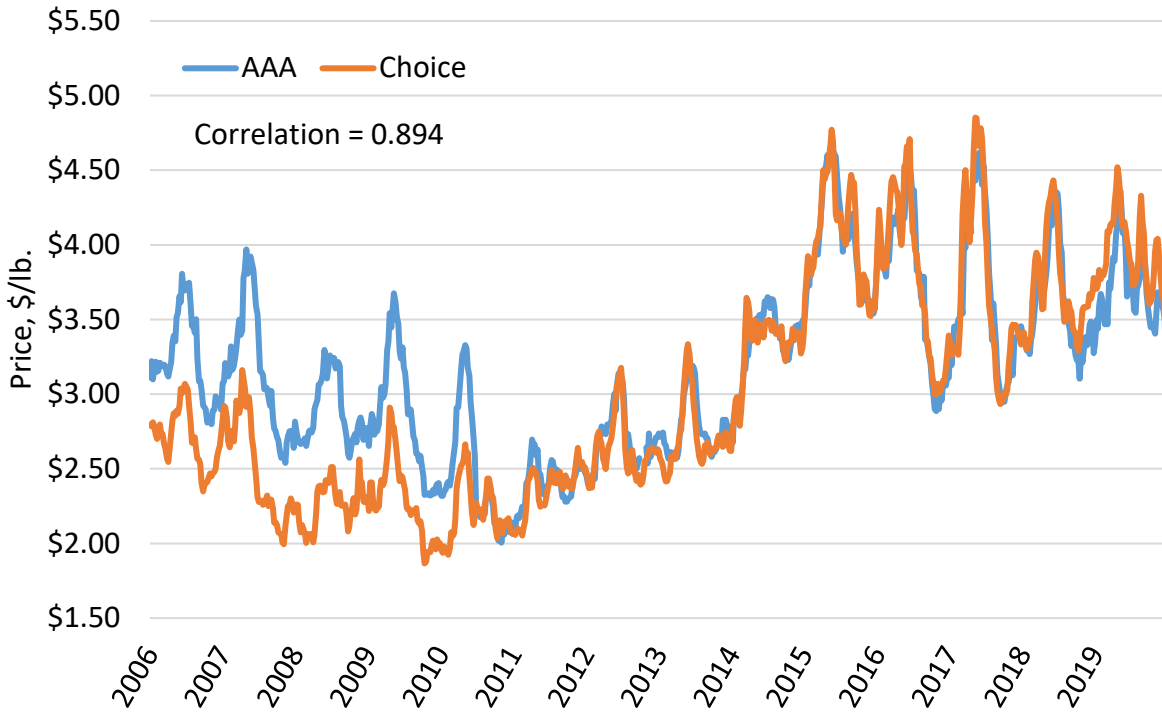
Canadian and U.S. Rib Primal, \$ Cdn, 2006-2019



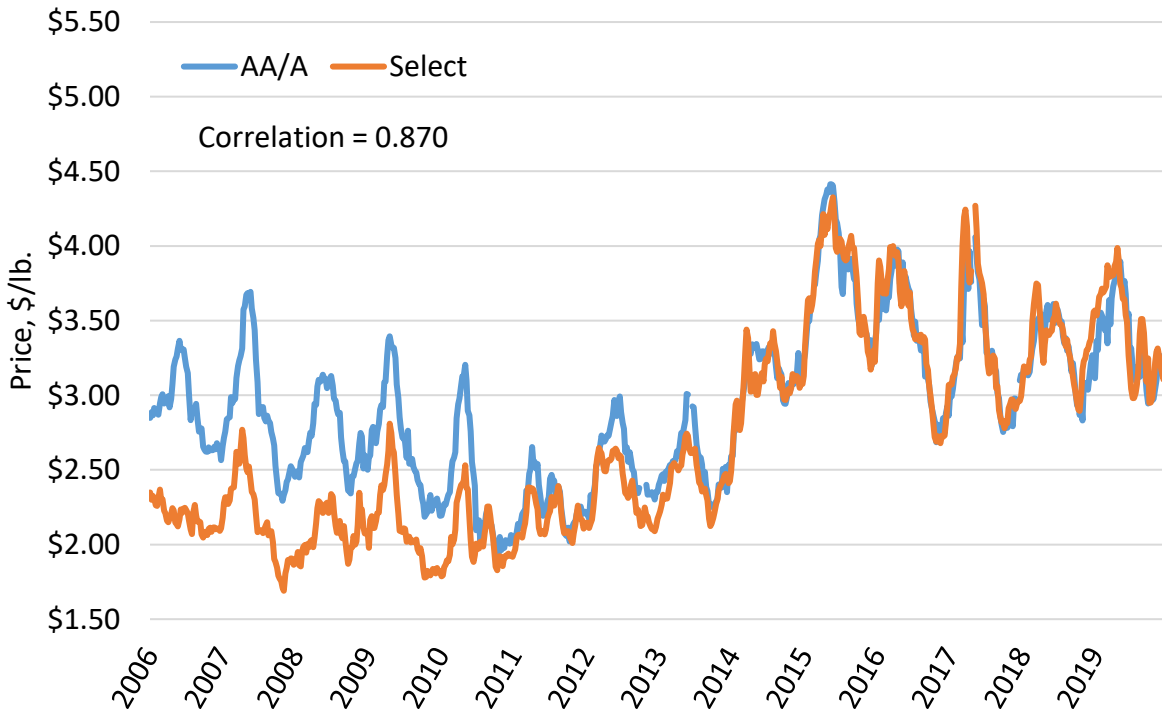
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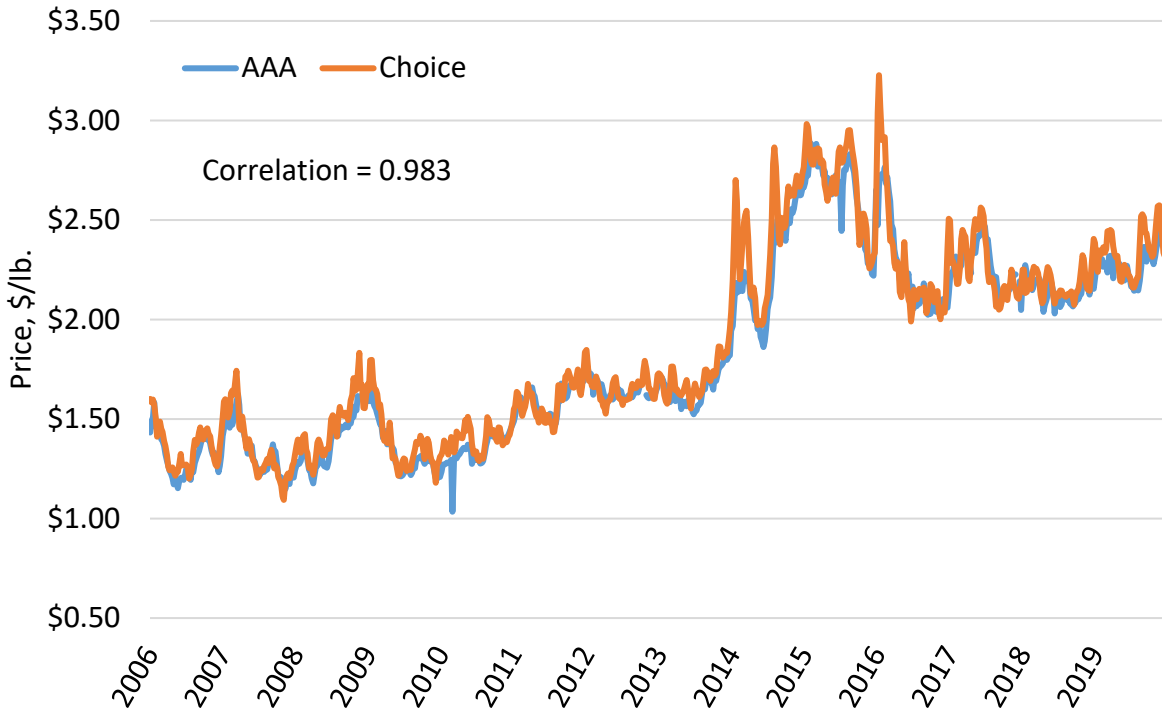
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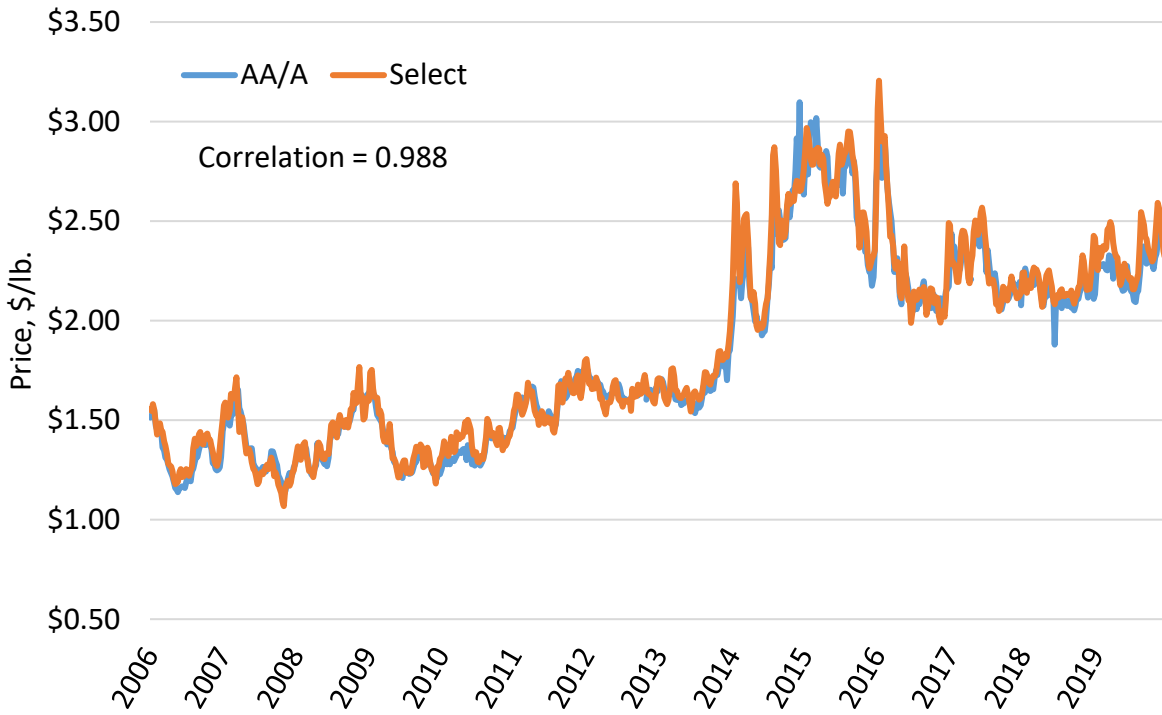
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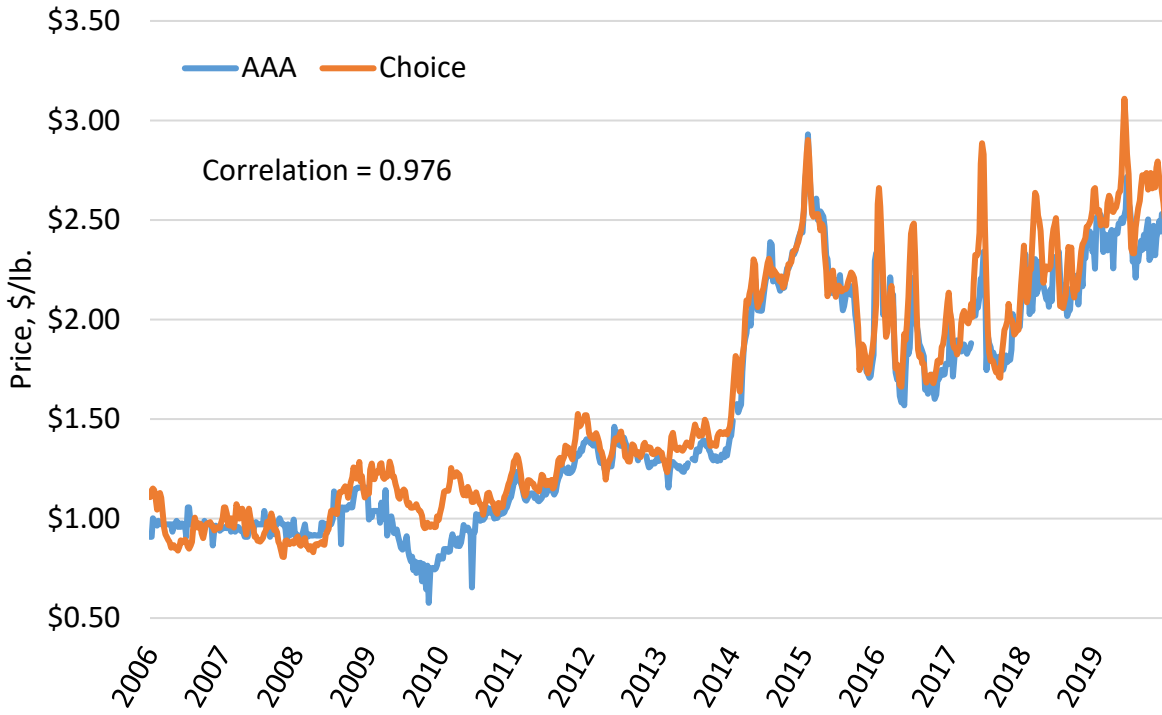
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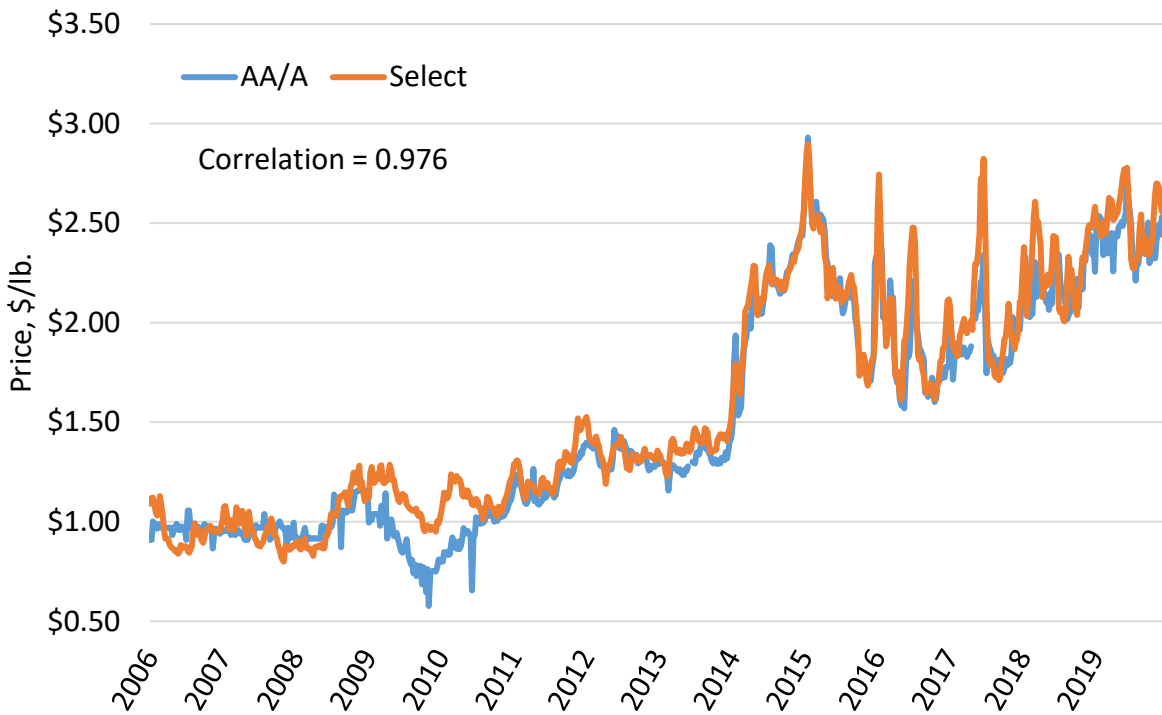
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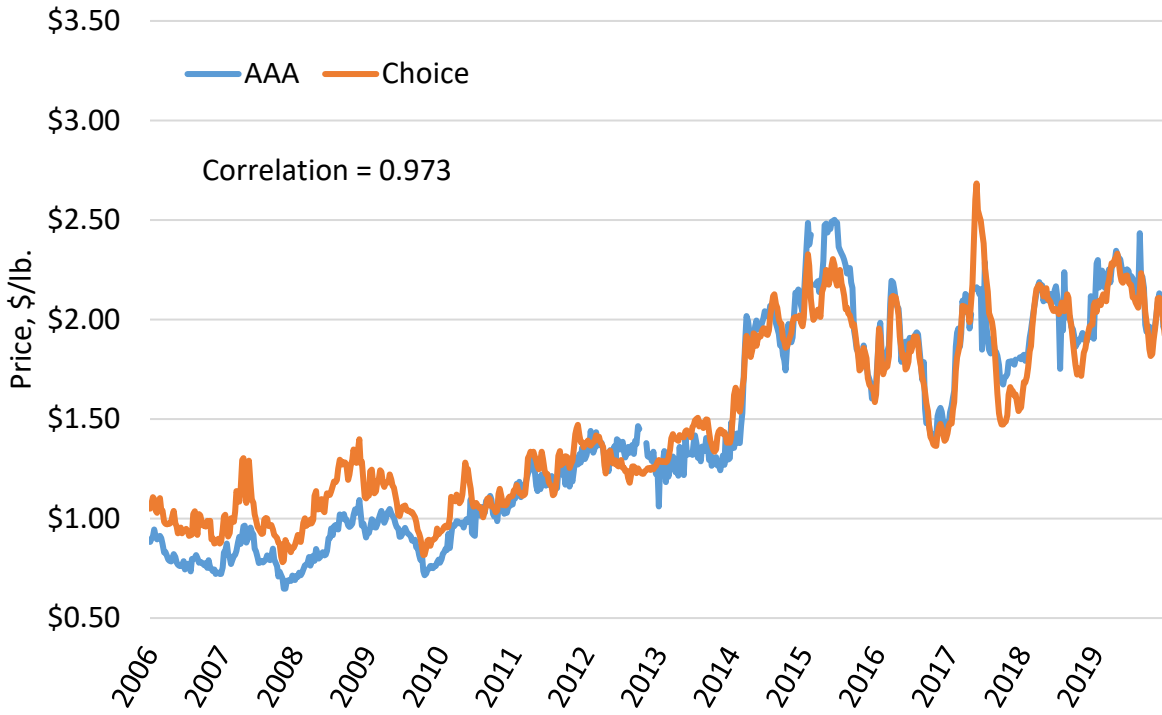
Canadian and U.S. Brisket Primal, \$ Cdn, 2006-2019



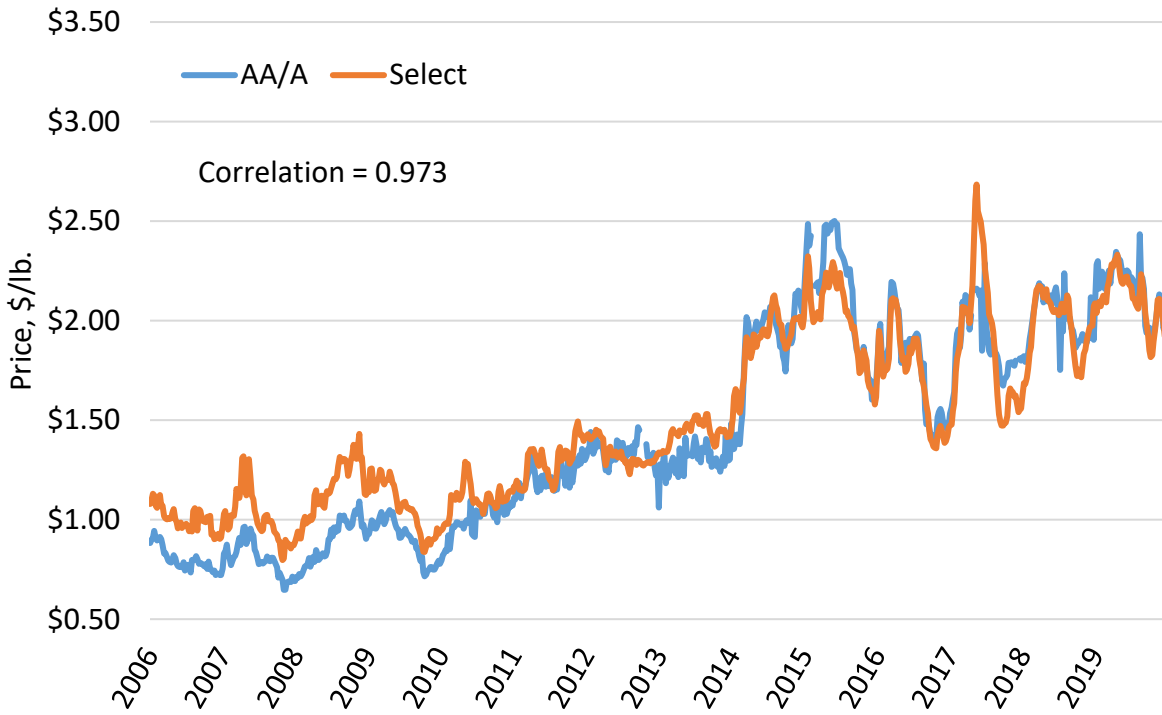
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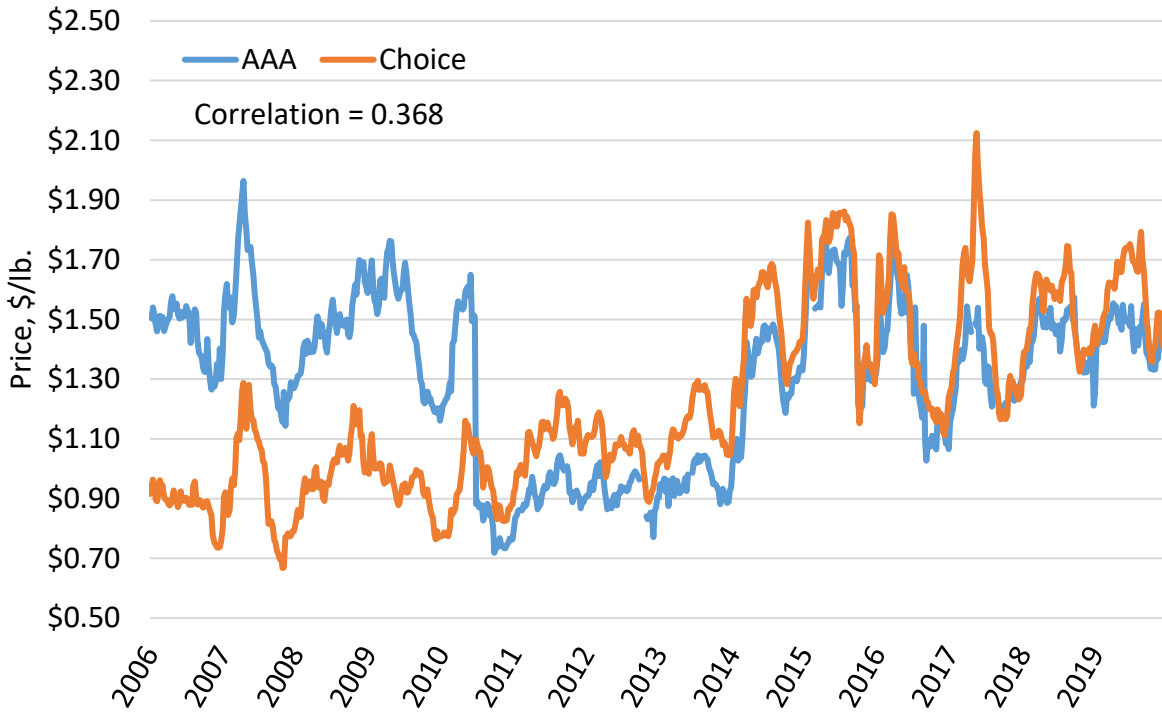
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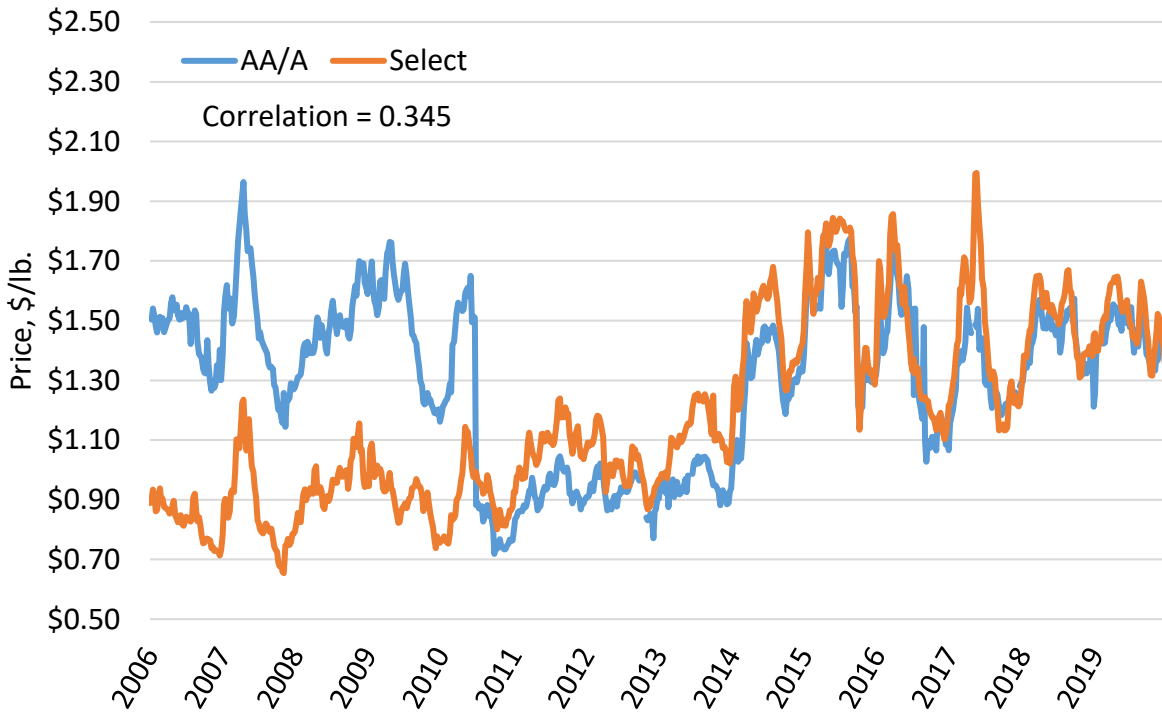
Canadian and U.S. Short Plate Primal, \$ Cdn, 2006-2019



Canadian and U.S. Flank Primal, \$ Cdn, 2006-2019



Canadian and U.S. Flank Primal, \$ Cdn, 2006-2019



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Price Discovery and Industry Margins in the Beef Industry

A Literature Review, August 2022



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EXECUTIVE SUMMARY

The cattle and beef market are a complex market system with various segments along the supply chain. Price is determined by supply and demand fundamentals, therefore as the cattle cycle progresses leverage shifts from producer to packer and back again depending on the stage of the cycle and the demand pull versus supply push. As a result, margins fluctuate over time and even within segments as market leverage ebbs and flows.

There are discussions currently taking place in the US to address market transparency and price discovery. Given the integration of the North American beef industry it would be expected that these types of changes would have impacts to the Canadian beef industry.

Market transparency is important for efficient markets. However, the suggestions made to improve US market transparency include an additional layer of complexity in the Canadian industry due to our current voluntary reporting structure as well added risk in basis and currency.

The assumption is that by limiting the use of Alternative Marketing Arrangements (AMAs), negotiated cash trade will increase and therefore the concern around robust price discovery and “thin” markets will be addressed. However, the potential trade off’s include increased transaction costs for negotiated trade, loss of value signals, impacts to branded programs and impacts to risk management programs. In addition, in Canada there is no mechanism to limit AMAs at this time.

The beef supply chain is complex and understanding the different segments is important to decipher the influences on economic decision. Although market price is rooted in the economic fundamentals of supply and demand, there may be other factors impacting supply chain decisions. The report identifies several future research considerations that could be further explored in the Canadian industry.

- Retail Consolidation
 - *What work is needed to improve understanding of retail consolidation and its influence on the supply chain? In addition, what impact will sustainability goals of big retailers and food service operators have on market price signals going forward?*
- Packer Utilization and Concentration
 - *What happens to utilization rates in the coming years and how does this impact packer profitability? How does the cattle cycle limit beef packer expansion?*
 - *How often or what should trigger industry to review market power and subsequent packer margins?*
- Producer Profitability
 - *How do farmland values influence cattle feeders purchasing decisions? Will land values ever fall like they did in the early 1980’s and early 1990’s resulting in a mass exit of producers due to being over-leveraged?*
 - *How does investor money from outside the industry impact feedlot viability and decision making?*
 - *What does profitability look like when you take into account risk management tools and basis negotiations? Are there times during the feeding period that have provided opportunities for profit? Can some cattle feeders negotiate better than average basis agreements for forward contracts?*
 - *How does risk management of inputs like feed grains impact profit margins?*

- *Are there other streams of revenue influencing cattle feeder decisions? How does sustainable financing such as the sale of carbon credits impact decisions and the pricing signals through the beef supply chain?*
- *What is needed to encourage cow/calf producers to stay in the business? Are there technology improvements that can help with labour costs?*

Understanding how proposed policy changes can impact traditional signals in the market is important. It is the goal of this report to inform and provide support to discussions held by industry associations.

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INTRODUCTION

Market transparency and price discovery are needed for efficient market operations. Transparency allows all players in the market to have the same information and make competitive decisions. In a free-market, price for a product or service is determined by the interaction of demand and supply; that is, the consumers' willingness and ability to buy the product, and the sellers' willingness and ability to produce and sell the product.¹ The topics of price discovery, packer concentration and market transparency are not new. Indeed, little has changed surrounding these issues in the past 30 years and has roots back over a century.

Events in the past 2-3 years have exacerbated the concerns of packing capacity and concentration as well as market transparency. In addition, the US Livestock Mandatory Reporting Act of 1999 was set to expire on September 2020 (it was extended by Congress through September 2021), which has resulted in a litany of discussions surrounding the concerns in the fed cattle market. In December 2021, the U.S. House of Representatives passed H.R. 5290 to extend the authorization for Livestock Mandatory Reporting and H.R. 5609, mandating the creation of a cattle contract library.

Canfax Research Services has commissioned this literature review for use by the Alberta Beef Producers, Alberta Cattle Feeders' Association, and Canadian Cattle Association to support discussions with their members. This is a synthesis of US and Canadian literature and data around market transparency and price discovery within the beef industry, addressing:

- What has changed since the last time price transparency and price discovery was reviewed in 2014?
- How current discussions in the US apply to the Canadian fed cattle market?
- What other consideration could guide discussion in Canada?

The Canadian and US beef and cattle markets are highly integrated, with the US beef industry eight times larger, the close proximity, and the US being a major trading partner. This literature review relies heavily upon information published in *The U.S. Beef Supply Chain: Issues and Challenges* (Fisher, Outlaw, and Anderson) as well as the *Analysis of the Cattle Price Discovery and Transparency Act of 2021* (Anderson, Mitchell, McKenzie). Canadian research papers from 2014-2018 on the Canfax Research Services website have also been utilized.

Out of Scope

This literature review is part of larger study supported by ABP, ACFA, CCA, and Alberta Ministry of Agriculture and Forestry. The other two parts include:

1. Serecon has been hired to understand the barriers to entry and expansion for the packing sector, specifically small and medium processing plants and abattoirs will likely have some unique challenges.
2. Lee Schultz (Iowa State University) and Ted Schroeder (Kansas State University) are examining Price Transparency in Canadian Boxed Beef prices, addressing confidentially concerns and robust price discovery.

¹ <https://www.ndsu.edu/aglawandmanagement/agmgmt/coursematerials/demandsupply>

Results from this research will be available in late 2022.

MARKET TRANSPARENCY

Market transparency is the ability of all players in the supply chain to know what price cattle or boxed beef was traded at. A market is considered transparent if much is known, by many, about: product quality and attributes, quantity available, at what price, and where. Transparency is important since it is one of the theoretical conditions required for a free market to be efficient. Price transparency can lead to higher prices, but does not guarantee that outcome as supply and demand are the underlying factors.²

“As trade has moved away from open markets to selling directly to packers there is limited market transparency in some areas. This resulted in the US moving from a Voluntary Price Reporting (VPR) system to Mandatory Price Reporting (MPR) system in 1999 in order to collect formula and contract information from packers.”³

Changes to US market transparency

As feedlots and processors consolidated in the 1990s and 1980s (see Appendix 1) the use of Alternative Marketing Arrangements (AMAs) became more attractive to both feeders and processors to manage market risk, service niche marketing programs, secure cattle supply, and secure slaughter access. With fewer cattle priced in a public forum, transparency declined. However, over the last decade things have been relatively stable. In 2013, 29% of all US fed cattle transactions were negotiated cash or negotiated grid and 59% were formula based and by 2020 negotiated volumes had dropped three percentage points to 26%⁴, making the last decade relatively stable. Although national numbers show a modest drop in negotiated sales, the decline is larger in some regions (i.e. southern Plains). Confidentiality requires the MPR program to combine information into regional reports, losing some of the local specific details.

Alternative Marketing Arrangements

So why is there so much animosity towards increasing use of Alternative Marketing Arrangements (AMAs) specifically formula-based trade? Use of AMAs (formula based, forward contract, and packer owned) reduce the volume on the cash market, i.e. thinning of the market. With a thin market, prices may become less reliable in determining value as supported by market fundamentals. Reduction in public market information has been found to increase price variance and decrease production efficiency (Anderson et al., 1998). Negotiated cash sales and market information function as a public good. This makes them vulnerable to being overused and underprovided for in the marketplace.⁵

Economists view more transactions as improving accuracy.⁶ However, in 2014 Ward, Vestal and Lee found that the relationship between negotiated and formula prices remained stable even as volumes decline. Furthermore, Anderson, McKenzie and Mitchell suggest that price discovery in the southern Plains is not notably different than regions with a much higher proportion of negotiated trade.

The use of AMAs is multifaceted and have benefits for both the producer and packer. AMAs reward quality, create improved production and processing efficiencies, reduce production costs per head through better plant utilization and spreading of fixed costs, and reduce search and transaction costs for

² [https://en.wikipedia.org/wiki/Transparency_\(market\)](https://en.wikipedia.org/wiki/Transparency_(market))

³ Canadian Cattlemen's Association, 2014. Price Discovery Task Force.

<https://www.canfax.ca/CRS/Price%20Discovery%20Report%20July%2031.pdf>

⁴ Canfax

⁵ CRS Fact Sheet, April 2014

⁶ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 3

cattle (Peel et al., 2020; Koontz and Lawrence, 2010; Anderson, Trapp, and Fleming, 2003; MacDonald et al., 2000). Therefore, the use of AMAs represents the progression to value-based marketing and the economic desire to reduce transaction costs.⁷

Marketing arrangements have become integral in coordinating beef supply chains and have often led to feedlots forming direct ties to a single packer.⁸ Reduced costs and limited hook space remain one of the prominent reasons cattle feeders enter into marketing agreements. As the industry has shifted to chronic under capacity in the packing sector this use of AMAs becomes more important to the feedlot producer in managing supplies, specifically pick-up times of ready cattle. This was supported by industry discussions with Schroeder, Coffrey, and Tonsor where it was suggested that feedlots with marketing arrangements during COVID-19 reduced capacity had higher priority, more reliable and more timely market access than those in the cash market. For the packer, marketing arrangements provide consistent, predictable quantities allowing them to be a reliable source to customers such as retail and food service with product specific demands. All of these benefits along the supply chain benefit the consumer.⁹

AMAs can be beneficial to both packer and producer. The packing industry continues to be highly concentrated and the procurement mix continues to favor the use of Alternative Marketing Arrangements over the negotiated cash market. Anderson, Mitchell, and McKenzie state that the results of their analysis of the Cattle Price Discovery and Transparency Act of 2021 show that AMAs do not allow beef packers to increase beef margins and lower cattle prices.

Who is impacted by AMAs?

In addition to the benefits from economies of size (see Appendix 1), large feedlots may have the ability to negotiate more advantageous forward contracts or formula grid arrangements than smaller seasonal feeders. This puts smaller and seasonal feedlot operations at a disadvantage. In the US, C. Robert Taylor refers to “sweetheart deals such as bonuses, packer-backed financing and risk sharing arrangements” and questions the impact on market transparency, implying that there are other factors driving the market outside of supply, demand and pricing (see Other Considerations section for potential areas of further research).

AMAs (formula-based) do not contribute to price discovery, but they do contribute to the weekly volumes and impacts on market “currentness”.¹⁰ This is because the base price in the agreement is typically tied to a negotiated price from one to two weeks prior meaning it does not represent current prices. Cash sellers face advance production risk¹¹, matching risk¹², and negotiation failing risk¹³.¹⁴ Sebas et al., 2013 suggests “it is likely that increased use of AMAs exacerbates these risks for those feedlots only selling cattle via the negotiate cash trade and puts them at a relative bargaining disadvantage.” This puts feedlots not allied with a specific packing plant at the most risk.

⁷ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 8

⁸ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 4

⁹ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 4

¹⁰ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 4

¹¹ Advance production risk (inventory loss risk): the risk of loosing some or all of the production cost

¹² Matching risk: the risk of being matched with someone in the market that has already traded and feels less pressure to trade compared to their trading partner

¹³ Negotiation risk: the risk of not coming to an agreement

¹⁴ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges Chapter 3

Canadian market transparency

In Canada, cattle and boxed beef price reporting to Canfax is completely voluntary. The Price Discovery Task Force report (2014) recommended enhancing cash reporting and subsequently a motion was passed that cash reporting become a requirement for all federal/provincial programs that require fed cattle price data to operate.¹⁵ The government expressed concerns with the proposed cross-compliance approach and has encouraged industry to explore alternative options for fed cattle price reporting.

Schroeder noted that “Turning the clock back to drive more negotiated cash price discovery is not a simple, inexpensive, or highly probable endeavor. Furthermore, turning the clock backwards is not necessary for fed cattle markets to function efficiently going forward. However, the transition from reported cash prices being central to short term information to being simply one among a larger set of relevant market information requires development of new information and new ways of pricing and valuing fed cattle and in collecting and reporting relevant market information”.¹⁶ Enhanced fed cattle price reporting (for forward contracts, formulas and grids) was implemented by Canfax from September 2014 to September 2017, but was discontinued due to lack of feedlot participation.

In Canada, the fed cattle procurement mix was last reported publicly in 2013 with cash representing 23% of fed cattle sales. The largest category of AMAs in Canada was forward contracts at 48% in 2013.¹⁷ With a lack of more current data available, concerns over pricing accuracy have prevailed.

In 2016, Schroeder and Belasco recommended that Canfax increase their efforts to collect cash information as well as to obtain packer data samples to assess price reporting accuracy¹⁸, however to date this has not taken place due to lack of packer participation. Efforts on cash trade have reduced the number of weeks with no price reported. Schroeder and Belasco (2016) found that “To be 95% confident prices reported are within \$0.50/cwt of the negotiated fed cattle market price each week, CanFax would need at least 17 transactions included in their weekly report.”¹⁹ In 2020 and 2021, estimated average transactions per week were above this target. The Alberta weekly average fed cattle cash volumes have increased from the 2014 low through 2021.

In January 2020, with the support of the Beef Farmers of Ontario (BFO), Canfax started an Ontario fed cattle price series comparable to the Alberta data series with information collected directly from Ontario feedlots. This price series has made the Eastern Price Insurance Index for fed cattle possible.²⁰

Canadian Boxed Beef Prices

Canadian boxed beef prices have not been reported since March 2020. This is an important segment of the beef supply chain and not having access to this information forces market participants to use US cutouts converted to Canadian dollars as a reference price. The Alberta Beef Producers and Alberta Cattle Feeders’ have contracted economists Lee Schultz from Iowa State University and Ted Schroeder from

¹⁵ *Canadian Cattlemen’s Association. 2014. Price Discovery Task Force report*

¹⁶ *Schroeder. June 2014. Effective Canadian Fed Cattle Price and Market Information*

¹⁷ *CRS Fact Sheet, April 2014*

¹⁸ *Schroeder and Belasco. As assessment of the Reliability of Canfax Reported Negotiated Fed Cattle Transactions and Market Prices, 2016*

¹⁹ *Schroeder and Belasco. An Assessment of the Reliability of CanFax Reported Negotiated Fed Cattle Transactions and Market Prices, 2016*

²⁰ *Kaastra. July 2021. Volume Analysis of an Eastern Canada Fed Cattle Index*

Kansas State University to explore options that would meet confidentiality and still allow for Canadian reporting.²¹

In Canada, the increase in Alberta fed cattle cash volumes reported to Canfax and the development of the Ontario fed cattle price series has improved market transparency for that sector. This, in turn, supports the Livestock Price Insurance program. The lack of boxed beef reporting leaves a gap in local market information.

PRICE DISCOVERY AND PRICE DETERMINATION

Price determination is the interaction of supply and demand which determines the market price level whereas price discovery provides the means for achieving price determination (e.g. auction, private tender, AMAs, etc.) and the equilibrium supply and demand of the market.²² Price determination represents the macro level perspective on equilibrium price, while price discovery represents the micro-level perspective on the variability of prices around that equilibrium.²³

Price determination represents the macro level perspective on equilibrium price, while price discovery represents the micro-level perspective on the variability of prices around that equilibrium.

Factors that impact price discovery include knowledge of supply and demand, trading institutions, risk traders face, risk preferences of traders, and expectations of value formed from using old and new market information.²⁴ It is a dynamic process and constantly is updated with new and updated information against a traders' perception of risk, quality, and animal value. While improving price discovery can not be expected to improve prices as this is based on price determination (supply and demand), it can make prices more efficient.²⁵

A market is efficient if prices in that market reflect all available information (Fama, 1970). In addition to market power, economies of size could directly influence price discovery (Bailey and Bronson, 1987). As Anderson, McKenzie and Mitchell describe, "larger firms have more total information simply by virtue of the volume of transactions to which they are party and if this information is more accurate than public information alone, it can affect price discovery.

The cattle and beef market on both sides of the border are a complex market system. The supply chain consists of a highly dispersed cow-calf herd funneled into a concentrated feedlot and packing industry before widening out into various channels to the consumer. Price is determined by supply and demand fundamentals. Although supply starts with the cow herd and is influenced by the stages of the cattle cycle, beef production has continued to grow with increased carcass weights, improved management, and production efficiencies. Demand, a consumer's willingness to purchase a given quantity at a given price, has been strong both domestically and globally. The demand side of the equation comprises of domestic retail and foodservice trade as well as beef exports. As the cattle cycle progresses leverage shifts from

²¹ Canfax. Personal communication with Brenna Grant

²² CRS Fact Sheet April 2014

²³ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 2

²⁴ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 3

²⁵ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 2

producer to packer and back again depending on if there is a demand pull or supply push (see Appendix 1 for further discussion).

What has changed?

Historically, periods of high cattle prices have reduced producer concerns about price transparency and price discovery, only to see them revived when there is a strong demand pull increasing cutout and retail prices, but there is also a large supply push right before the cattle cycle bottom's (e.g. 2013/14) keeping cattle prices within a historic trading range. Since 2019, there have been multiple supply and demand shocks to the North American beef and cattle market (e.g. fire at a beef packing plant in Holcomb, Kansas; COVID-19 pandemic) that have disrupted processing, labour availability, and increased costs at packing plants while domestic retail and international demand have been strong.

Processing disruptions, as seen during COVID-19, impact both up and downstream sectors. Not only do they limit the packer demand for fed cattle causing a back up in feedlot marketings and subsequently add carcass weights, but the reduction in wholesale supplies is also felt by the consumer as they compete for less product. The rapid rise in consumer retail demand spurred by at home eating during the pandemic sent wholesale and retail prices higher; while fed cattle prices failed to keep up. This was especially true during 2020 Q2 with COVID outbreaks at plants resulting in reduced slaughter, down 19%²⁶ in Canada and 22% in the US²⁷.

The subsequent increase in retail and boxed beef prices have been followed by general inflation of all commodities with input prices rising faster than output prices, squeezing margins. During such times of market volatility and squeezed margins, accuracy of price discovery is being questioned.

Price Spreads

In Figure 1, The inflation-adjusted US weekly farm-to-wholesale beef price spread trended sideways from 2005-2013, then the spread increased to be on either side of \$100USD/cwt from 2014-2016, before finding a new range until the COVID-19 pandemic. During this time, there were two periods of noticeable spikes in the spread characterized by the US ban in beef imports from Brazil in 2017 and the fire in Holcomb, KS Tyson plant in 2019. In the first three months of 2020, wholesale prices were mostly flat around \$225USD/cwt (not adjusted for inflation), while US fed cattle prices ranged between \$108-124USD/cwt (not adjusted). Following the initial pandemic response, retail demand spiked while food service activity was reduced. Fed cattle prices on the other hand did not respond. As a result, the farm-to-wholesale beef price spread widened and was similar to the spread noted during the processing disruptions due to the fire in Holcomb. During the bottleneck period, weekly farm to wholesale spreads exploded, more than doubling previous highs.²⁸

²⁶ *Canadian Monthly Slaughter by Class (Federally Inspected Only)*, www.canfax.ca

²⁷ Lusk, Tonsor, Schulz, 2020, *Beef and Pork Marketing Margins and Price Spreads during COVID-19*

²⁸ Lusk, Tonsor, Schulz, 2020, *Beef and Pork Marketing Margins and Price Spreads during COVID-19*

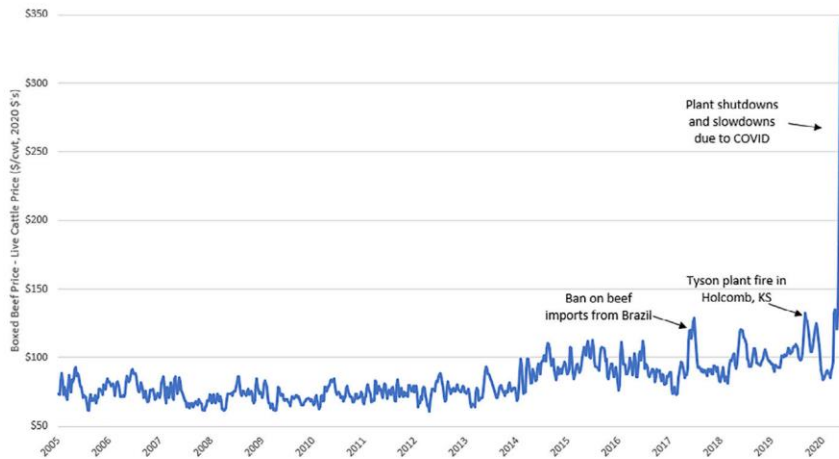


Figure 1. Inflation-adjusted Weekly Farm to Wholesale Beef Price Spread, January 2005 to June 2020
Source: Beef and Pork Marketing Margins and Price Spreads during COVID-19 (Lusk, Tonsor, Schulz)

USDA choice cutout values have come down to \$267 CDN/cwt in July 2022, but remain second highest on record for this time of year and are 22% higher than 2017. Meanwhile, the US fed steer prices are the strongest since 2017 at \$142 USD/cwt for early July.²⁹ Indicating that while the farm to wholesale price spread has declined from the record high levels, it remains historically high.

In Canada, Kevin Grier (2022) found that “there were very strong price relationships between the cattle farm and beef packer sectors from 2010 through 2017. The two prices moved almost in tandem together. From 2018 to 2021 there was almost no relationship amongst prices at the farm and packer levels.”³⁰ Similarly, he found a strong relationship between the packer and retailer from 2010 to 2017 but a much weaker relationship from 2018 to 2021. He concluded “that unusual events such as the Tyson fire and COVID, in combination with basic supply and demand factors, contributed to the dichotomy between the beef cutout and the retail and farm price.”³¹

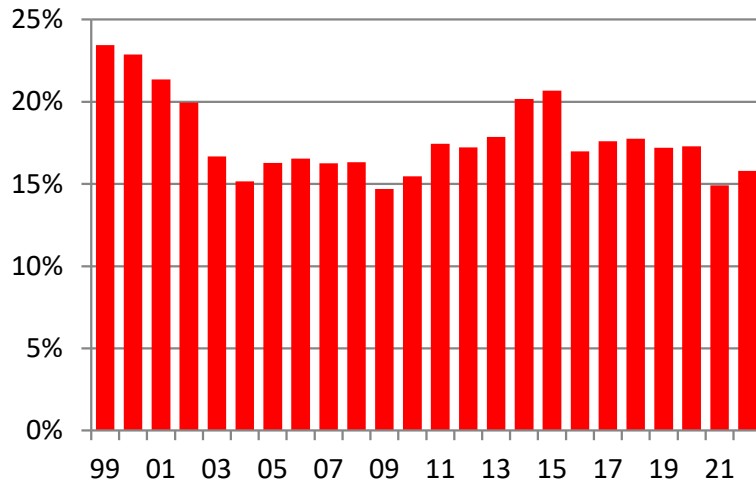
The Alberta live steer-to-retail spread (Figure 2) has ranged between 15-23% since 1999. Although retail prices increased during 2020 due to COVID impacts, the annual live steer-to- retail spread was similar to the range seen during 2016-2019. In 2021, the live steer-retail spread narrowed to 15% and while this is the second lowest point referenced on the chart, it is within ranges seen during 2004 and 2009. Showing that on an annual basis the current market situation in Canada, is not unprecedented and in fact is what is expected at this point in the cattle cycle when demand is strong signaling expansion should occur and weather patterns are forcing liquidation resulting in large cattle supplies.

²⁹ *Cattlefax*

³⁰ Grier, Kevin. 2022. *Ontario Beef and Cattle Pricing 2016-2021: An examination of Price and Margin Trends in the Ontario Cattle and Beef Industry.*

³¹ Grier, Kevin. 2022. *Ontario Beef and Cattle Pricing 2016-2021: An examination of Price and Margin Trends in the Ontario Cattle and Beef Industry.*

Live Steer as % of Retail



Source: Statistics Canada, CMC, Canfax

Figure 2. Live Steer as % of Retail (Canadian)

Source: Statistics Canada, CMC, Canfax

Grier found that “given the much slower rate of increase of farm prices compared to retail and packer, there is no basis to assert that farm prices are the cause of higher retail prices.” In fact, “retailers have not been fully passing along the increased beef cutout costs. Instead, retailer margins on beef have likely been shrinking over the past two years”.

Limitations

As Lusk, Tonsor, Schulz (2020) state “margins for meat packers and livestock producers fluctuate over time, and even within segments, as market leverage ebbs and flows, meaning price spreads between wholesale and farm levels are not precise reflections of marketing costs at any point in time”.³² They also note that packer gross margin and price spreads are not the same thing. Price spreads lump together costs for several segments, while gross margins apply only to costs for specific segments (Ross 1984). In addition, data is not readily available on fixed costs needed to calculate net margin and it is unknown the magnitude on COVID-19 based cost increases. Tomek and Robinson (1972) cautioned “The per unit margin (farm-retail spread) statistics and especially the related concept of the farmer’s share of the consumer’s dollar are subject to misinterpretation. This concept is perhaps the most frequently quoted, but misused, number published by the USDA. There is a tendency to use the number to indicate the ‘well-being’ of farmers or to indicate that marketing costs are ‘too high.’ In fact, the farmer’s share statistic has little to say about either problem (pp. 115–116).”³³

Profitability

Although not unseen, it can be challenging for all sectors of the supply chain to be profitable at the same time, as the output from one sector (e.g. feeder or fed cattle) are the inputs for the next. So that high prices received in one place, imply higher costs for another. In addition, as the cattle cycle progresses

³² Lusk, Tonsor, Schulz, 2020, *Beef and Pork Marketing Margins and Price Spreads during COVID-19*

³³ Brestler, Marsh, Atwood, 2009. *JARE, Evaluating the Farmer’s Share-of-the-Retail-Dollar Statistic*

leverage shifts up and down the supply chain. Each sector has experienced times of abnormally large margins and abnormally large losses. This stresses the importance of risk management and protecting equity at every stage (e.g. cow-calf, feedlot, packer).

Packer

Grier estimated that Ontario beef packer margins moved from normal levels in 2016-2018 to be very profitable in 2019 and to exception profitability in 2020-21. He noted that exceptional estimated margins were enjoyed by packers across North America. However, he stated that there were obvious reasons for high packer prices related to both supply and demand forces, as well as unusual events.³⁴ Canfax Research Services estimated packer margins for Alberta are consistent with these findings.³⁵

In contrast, while it is possible that packer profitability increased during COVID-19 disruptions, Lusk, Tonsor, Schulz (2021) state “changes in the stock prices of companies with significant packing operations do not suggest substantial windfalls corresponding with COVID-19 driven developments, and indeed the performance of publicly traded packing companies has lagged that of the overall market since the first of the year.”³⁶

Feedlot

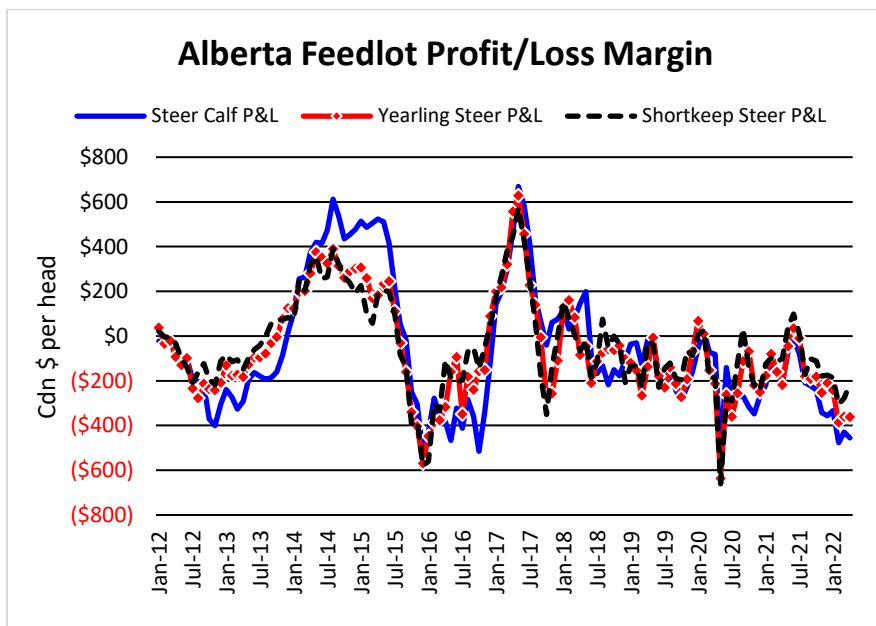


Figure 3. Alberta Feedlot Profit/Loss Margin
Source: Canfax TRENDS

Profitability, on a cash basis, in the feeding sector at times can be very challenging as shown in Figure 3 using the Canfax TRENDS data. Although there have been periods of large profits (+\$600CDN/head) and losses (-\$600CDN/head), since 2019 profitability has ranged mostly between breakeven and \$200CDN/head loss, except for Q2 2020 when all classes of cattle were projected to have a loss upwards

³⁴ Grier, Kevin. 2022. *Ontario Beef and Cattle Pricing 2016-2021: An examination of Price and Margin Trends in the Ontario Cattle and Beef Industry.*

³⁵ Canfax. Personal communication with Brenna Grant

³⁶ Lusk, Tonsor, Schulz, 2020, *Beef and Pork Marketing Margins and Price Spreads during COVID-19*

of \$600CDN/head. This coincided with the packer disruptions, which backed up cattle marketings. Since mid-2021 profitability has been trending worse with the rapid appreciation of grain prices spurred by drought. The unexpected aspect is that Alberta and Saskatchewan finishing bunk capacity has increased 19% from 2015 to 2022.³⁷ This dichotomy is discussed further in the “Other Considerations” section.

Grier found Ontario cattle feeder margins have been consistent and generally negative from 2016 through 2021. Margins on feeding yearlings were very negative in 2016 and recovered briefly in 2017, from that point margins remained in a serious loss position.³⁸

Cow-Calf

For the past 5 years, Canfax Research data has shown average Alberta cow/calf returns above \$250CDN/cow but with a steady decline since 2017. The forecast for 2022 is the first average loss since 2010 as cow/calf producers have been faced with increased input costs following the 2021 drought.³⁹ Based on these profits the beef cows in Canada increased 1.2% between 2016 and 2021 as reported by Census of Agriculture.

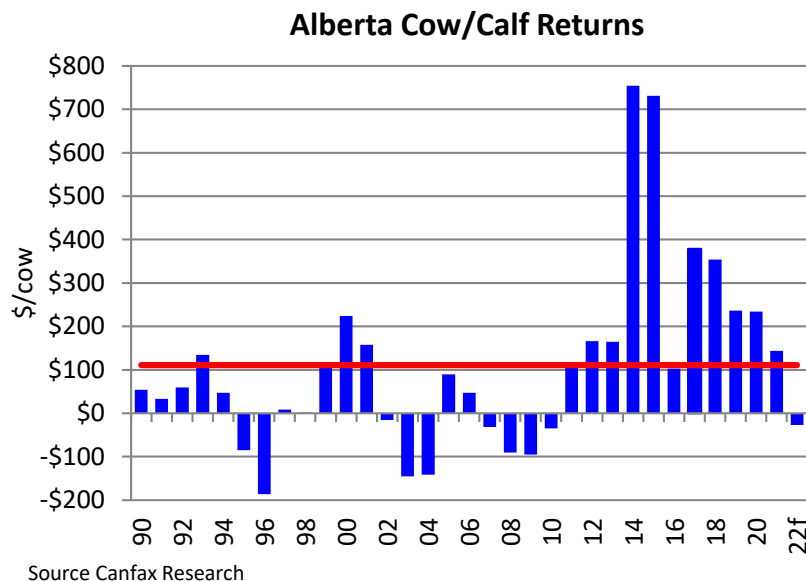


Figure 4. Cow/Calf Returns, CDN Dollars
Source: Canfax Research Services

US Industry

Although a similar profitability trend, US cow/calf producers have experienced profits for a longer period than Canadian producers. As with Canada, US producer had the largest profits in 2014/2015 with declines into 2020, but unlike Canadian producers, US cow/calf producers saw profitability grow slightly in 2021

³⁷ Canfax Annual Demographics Report.

³⁸ Grier, Kevin. 2022. Ontario Beef and Cattle Pricing 2016-2021: An examination of Price and Margin Trends in the Ontario Cattle and Beef Industry.

³⁹ The Alberta Cow-Calf returns model is based on a costs from weaning to weaning. Therefore, the higher feed costs for the 2021/22 winter show up in the 2022 calf crop margin.

and are expected to have another increase in 2022. The impact of the 2022 drought in the US will impact costs for the 2023 calf crop. The US feedlot industry has had more variability than the cow/calf producer and like the Canadian industry has had profits and losses on either side of breakeven. For the past decade, US feedlots have had losses in 7 out of the 10 years with slight profits in 2021 and a larger expected profit in 2022.

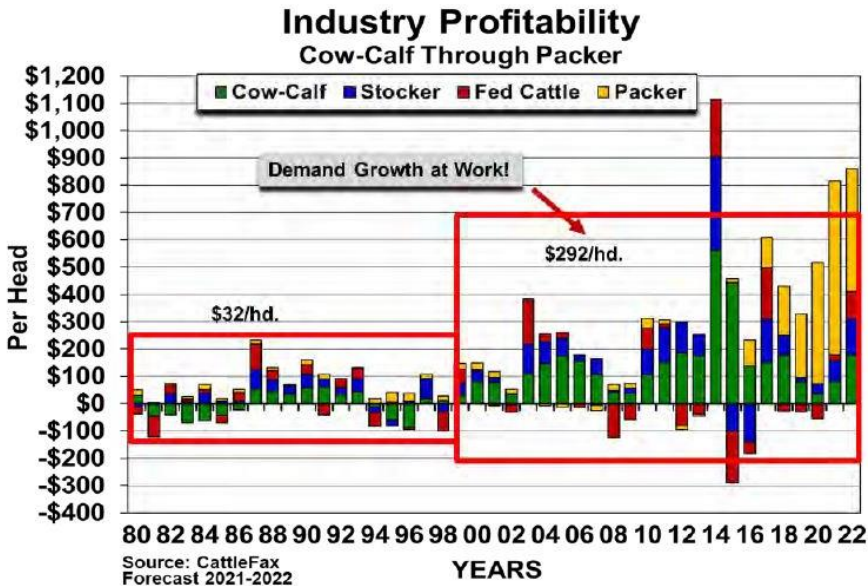


Figure 5. US Industry Profitability by Sector
Source: Cattlefax

Price Transmission and Leverage

Price discovery and price determination should not be confused with price transmission. Price transmission is the ability of market signals to be passed through the supply chain from the consumers back to the cow-calf producers so that they can respond by producing more/less of what they want/don't want. Vavra, P and B. Goodwin (2005) state "The adjustment to price shocks along the chain from producer to wholesale and to retail levels, and vice versa, is an important characteristic of the functioning of markets."⁴⁰

During the cattle cycle, leverage shifts from producer to packer and vice versa as the supply/demand fundamentals are exerted. From 2005-2015, Dr. Peel calculated that the US industry operated with an excess of fed cattle packing capacity (approx. 0-9%).⁴¹ However, between 2000-2013 there was a reduction in packing capacity with permanent plant closures. Combine this with the US herd expansion from 2004-2019 and it is estimated that since 2016 there has been a shortage of cattle packing capacity.⁴² As Dr. Peel states "this fundamental change in fed cattle supply and demand balance is impacting fed cattle markets in ways not seen for many years". In other words, leverage has favored the packer in this situation.

⁴⁰ Vavra, P and B. Goodwin, 2005, Analysis of price Transmission Along the Food
⁴¹ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 2
⁴² Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 2

In summary, margins fluctuate over time and even within segments as market leverage ebbs and flows. While there is little argument that price spreads between farm and wholesale widened out with the largest spreads noted during packing disruptions in 2020 due to the COVID-19 pandemic, less is understood about how net packer margins were impacted. Feedlot profitability continues to be challenging and while the cow-calf sector has been profitable, returns have been decreasing since 2017.

CURRENT DISCUSSIONS AND HOW THEY APPLY TO CANADA

In recent years market disruptions resulting from limited live cattle processing caused low demand for fed cattle, high demand for some beef products and tight supplies.⁴³ This situation refuelled the concerns around price discovery, fed cattle prices, market power, capacity, and utilization, and fed cattle procurement.⁴⁴ In the US, various solutions have been suggested and selections are discussed below with comments on how they may pertain to the Canadian market.

Market Transparency

Market transparency is important for efficient markets and there have been a few suggestions made in the US to tackle this. Anderson et. Al. (1998) found the loss of public information hurt production efficiency and therefore increased feeding costs and impacted feeders more than packers. There are four areas of discussion around market reporting and transparency, outlined in Table 1.

Table 1. Alternatives to market reporting and transparency

	Pro	Con	Canadian considerations
Utilize Live Cattle Futures as formula agreement base price	Provides an alternative base price that is transparent for producers. Addresses time matching concern.	The link between cash markets and CME cattle futures is not perfect. Does not contribute to price discovery	For Canada there is the additional layer of risk (currency and basis) when using the live cattle futures for pricing.
Create a contract library	Provides transparency in market terms (e.g. grid premiums and discounts, formulas, contracts) so that producers know what options are available when negotiating.	The ability to mine information from a contract library goes to packers who have economies of scale to use information about their competitors.	In Canada, how this is accomplished would need to address voluntary reporting and confidentiality
Utilize Electronic trading platform	A double auction is the most efficient. Transaction costs may be reduced.	Success is dependant on having a sufficient number of both buyers and sellers.	Lack of uptake in the US and Canada for fed cattle.
Improve market reporting	Improvements to the MPR definitions of reporting and the confidentiality rules could help with market transparency	While MPR provides transactional data there may be limitations in using it for supporting regulatory decisions.	In Canada, voluntary price reporting is critical to support Livestock Price Insurance, AgriStability and calculate basis numbers for numerous risk management applications.

Schroeder, Coffey and Tonsor suggest that base prices in formula agreements could be switched to live **cattle futures** or some other price that matches the delivery date and while that may address the time matching concern it would not address the concern about contributing to price discovery. As C Robert Taylor notes “theoretically, cash markets and CME cattle futures are linked, although the link is not

⁴³ Martinez et al., 2020

⁴⁴ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 9

perfect.” In Canada there is the additional layer of risk (currency and basis) when using the live cattle futures for pricing.

In 2015, Koontz provided **10 alternative prescriptions** to thinning markets that ranged from adoption through industry associations to legislative mandates.⁴⁵ Included in these suggestions were a *Market Maker Approach* where a trader who provides liquidity to the market is compensated, while the one using the liquidity is charged a fee.⁴⁶ One different suggestion made by Maples and Burdine is the development of a *contract library*, similar to the Swine Contract Library in the US. This would provide information to the industry on formula and forward contracts specs in addition to the price information that is currently known through MPR, therefore increasing market transparency. However, the cost/benefit of this suggestions would need to be considered. In December 2021, the U.S. House of Representatives passed H.R. 5290 to extend the authorization for Livestock Mandatory Reporting and H.R. 5609, mandating the creation of a cattle contract library.⁴⁷ For detailed proposals see Appendix 2.

In Canada, considerable work would need to be done to determine how to collect and disseminate forward contract information based on the current voluntary reporting methods. In addition, confidentiality would be a concern given the market structure of the Canadian packing industry.

Peel et al. (2020) proposed an **electronic trading platform** for spot market transactions and research from Menkhaus et al., 2003 suggests that a double auction would be the best fit for this type of trade. Transaction costs may also be reduced, however it is dependant on having sufficient number of both buyers and sellers. In the US, The Fed Cattle Exchange has been operating an electronic sale since 2016 at limited volumes. In the first 5 months of 2022, 55% of the auction dates resulted in a no sale.⁴⁸ It appears that AMAs and other ways of direct negotiations between feedlots and packers are preferred over electronic trading platforms, which reduces the number of buyers and sellers needed for this recommendation to be successful.

In the Canadian market, electronic trading platforms (TEAM and DLMS) have been utilized in the past but have been more successful in the feeder market than the fed market.

Several suggestions were made to **improve MPR in the US**. Authors in the US Beef Supply Chain: Issues and Challenges acknowledged that improvements to the definitions of reporting and the confidentiality rules could help with market transparency and provide a larger net benefit to the producer than other proposals.⁴⁹ It is also important to recognize that while MPR provides transactional data there may be limitations in using it for supporting regulatory decisions.

In Canada, market reporting has been a concern not only surrounding price discovery but also how the information is used to support the industry. As discussed in the 2014 CRS Fact sheet, the Livestock Price Insurance program relies on a cash price for the settlement index and without this the viability of the program is called into question.

⁴⁵ Koontz. *Marketing Method Use in Trade of Fed Cattle: Causes and Consequences of Thinning Cash Markets and Potential Solutions (2015)*

⁴⁶ Anderson, Mitchell, McKenzie, 2022, *Analysis of the Cattle Price Discovery and Transparency Act of 2021*

⁴⁷ <https://www.drovers.com/news/industry/cattle-raisers-applaud-passage-market-transparency-bills>

⁴⁸ *Central Stockyards (centralstockyards.com)*

⁴⁹ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 4*

For Canadians a cash price is needed to establish an accurate and trusted basis figure. Historical basis figures provide an integral piece of information for cattle feeders as well as industry. For cattle feeders specific to the fed market, basis can be used in negotiating current cash trade, negotiating forward contracts, and determining which risk management tools to utilize. As it pertains to the feeder market, basis information is used in procurement calculators and projections as well as influences the direction of feeder exports/imports. For industry, historical basis figures are used when evaluating the performance of the Canadian market relative to the US market and have been used to evaluate damages incurred through trade action suits.⁵⁰

Price Discovery

Schroeder (2014) recommended a long list of data that could be added to the Canadian industry to improve understanding of supply and demand dynamics in order to improve price discovery. As it is when there are short-term disconnects between supply and demand that prices are more volatile.⁵¹ However, with a voluntary reporting structure, it is important to prioritize and dedicate resources to key pieces of data such as Price Series (Basis), Cattle on Feed, Weekly Slaughter, and trade that can be readily used by different segments of the industry.

Limiting use of AMAs

In the past 2 years there have been numerous proposals discussed in the US from industry associations and government representatives to address the volume of transparent trade.

Table 2. Examples of US Proposals to address transparent trade

	S.4030 Cattle Price Discovery and Transparency Act of 2022	75% Plan
Supporters	Sen Fisher + 19 co-sponsors	NCBA
Objective	Would mandate a minimum required volume of negotiated cash for slaughter within 14 day period	“Increase frequent and transparent negotiated trade to regionally sufficient levels, to achieve robust price discovery determined by NCBA funded and directed research in all major cattle feeding regions”
Enforcement	Legislated	Voluntary

⁵⁰ CRS Fact Sheet, 2014

⁵¹ Schroeder. June 2014. Effective Canadian Fed Cattle Price and Market Information

There are four main areas of discussion around limiting the use of AMAs:

Table 3. Limiting AMAs

Pro's	Con's
1. Increased negotiated trade volume	1. Increased transaction costs for negotiated trade
	2. Loss of value signals provided by a formula grid
	3. Impacts to branded programs
	4. Impacts to risk management strategies

The assumption is that by limiting the use of AMAs, **negotiated cash trade will increase** and therefore the concern around robust price discovery and “thin” markets will be addressed. However, Fischer and Outlaw note that “with respect to fed cattle prices, AMAs do not create market power, because they do not change underlying supply and demand fundamentals”.⁵² In addition, sellers will still face advance production risk and some level of matching and negotiation failure risk regardless of mandated cash negotiated volumes.⁵³ AMAs are known to reduce transaction costs for both the packer and the feeder. Plants with higher AMA use had higher monthly slaughter and processing volumes.⁵⁴ Subsequently you would expect the cost to increase with less AMA use which would be passed on both downstream to cattle producers (fed, feeder and calf) and upstream to consumer, ultimately widening the farm to wholesale spread.

Another concern with limiting the use of AMAs would be the **potential loss of value signals** (quality, yield, branded programs) sent to cattle feeders if the assumption was that those sales would then be negotiated spot trade. However, these value signals could still be achieved through negotiated grid sales. In the last 5 years, 5% of US fed cattle procurement as reported in LMR has been negotiated with a grid⁵⁵, therefore this type of trade could increase while still relaying the important value signals. An example of this would be the Fed Cattle Exchange, an online auction sale where sellers have the option to list cattle as a Bid-The-Grid™ transaction, however year to date volumes have been low.⁵⁶ Negotiated grid trade has also been known to happen in Canada, albeit volumes are not known due to voluntary reporting.

Specific branded program or certification can have additional costs to the producer for such things as production practices, genetics, etc. Marketing agreements allow for financial rewards for incurring those costs that may not be guaranteed if those same animals were sold as negotiated cash.⁵⁷ If AMAs were limited would branded programs be as successful if the packer was not as confident in accessing a consistent source?

When speaking of AMAs in the US, it is typically referring to formula-based agreements, AMAs also include forward contracts, which are more prevalent in Alberta. If limiting AMAs included forward contracts this

⁵² Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Introduction

⁵³ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 3

⁵⁴ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 5

⁵⁵ C Robert Taylor, 2022, Harvested Cattle, Slaughtered Markets?

⁵⁶ Central Stockyards (centralstockyards.com)

⁵⁷ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 4

would reduce or remove an important *risk management tool* available to both buyers and sellers. Forward contracts allow for producers to price anytime during the feeding period from the time the contract is signed until delivery month which offers flexibility for pricing in a profit or limiting a loss.

US Packer Procurement of Imported Fed Cattle

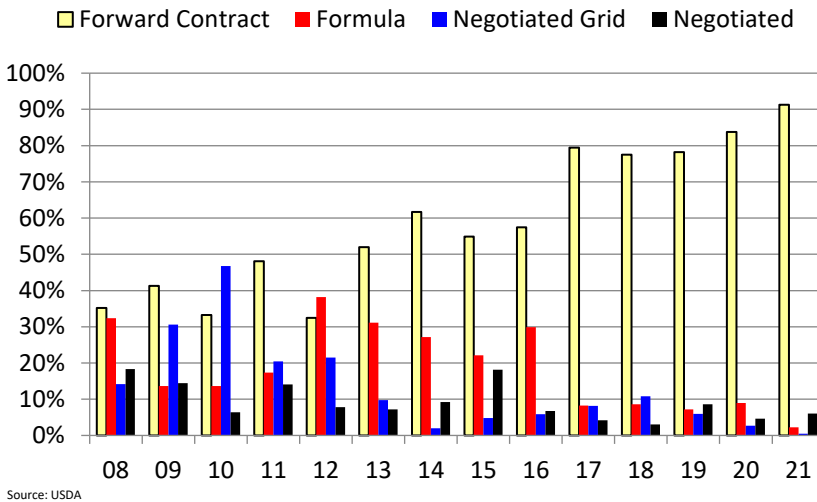


Figure 6. US Packer Procurement of Imported Fed Cattle (Canadian)
Source: USDA

As the Alberta fed cattle profitability chart (Figure 4) shows based on the cash market the last couple years, sellers have not marketed at profitable levels, but that is not to say that there was not opportunity to do so during the feeding period. Recent expansion in the Alberta feeding sector in the face of negative feedlot profitability (based on a cash market model) leads one to ponder how many opportunities exist to capture a profit during the feeding period and therefore if the use of AMAs includes forward contracts how does that impact the approximately 250,000-300,000 head of Canadian fed cattle that are exported to the US annually of which 80-90% are non-cash (Figure 6).⁵⁸ In addition, risk management programs can be seen as a benefit providing, confidence to some financing agreements⁵⁹ as well as attracting outside investor capital⁶⁰. Finally, there is no mechanism to limited AMAs in Canada at this time.

As Koontz summarizes, “limiting the uses of AMAs by the cattle feeding and packing industries will decrease efficiency, increase processing and marketing costs, and has the potential to reduce beef quality”. He estimates in today’s dollars that impact could be at least \$10USD per head for the packer and least \$25USD per head for the cattle feeder.⁶¹

Market Power and Economies of Scale

Any discussion pertaining to the fed cattle pricing and industry price spreads would be amiss to exclude concerns over packing capacity and potential market power as fed cattle prices and packing capacity are so closely linked. A lot of research over the years has been dedicated to seeking evidence of such

⁵⁸ USDA Mandatory Price Reporting by US Packers

⁵⁹ C Robert Taylor, 2022, *Harvested Cattle, Slaughtered Markets?*

⁶⁰ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 5*

⁶¹ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 5*

behaviour, but the research has consistently found little support for negative price effects of concentration (Ward, 1997; Ward, 1999; Crespi, Saitone, and Sexton, 2012).⁶² Peel et al., 2020 also states “the small but significant price of impacts of market power are outweighed by several magnitudes in cost efficiencies that benefit producers and consumers.” In Canada, Rude, Harrison, and Carlberg found little evidence of oligopsony market power with an open border.⁶³

There have been continued calls for limiting packer concentration as well as funding for new packing facilities in the US. In July 2021, the Biden Administration announced funding to help bring on additional capacity and while that may address the current environment of fed cattle supplies exceeding packing capacity this will not always be the situation, which can be anticipated by decline in North American cow inventories currently taking place.

Economies of scale in the packing industry are well documented with large plants having significant cost advantages over smaller plants. In addition, a plant’s costs are the lowest when operating closest to the potential capacity of the facility. Koontz states “Reducing the operating rate of packing plants increases the costs of operating and increases costs at an ever-increasing rate”. As the authors recognized *expanding smaller, regional packing capacity will need to be done in a sustainable and economically viable way.*⁶⁴

In Canada, CAPI commissioned a feasibility study on small plants as a way to mitigate risk in the supply chain as was felt during COVID-19 in 2020. The study’s author, Rude, found that *simply building more, smaller/regional meat processing plants; engineering mandatory excess capacity into meat plants to provide additional space for workers; and increased use of automation in processing plants- would not independently secure meat supply chain resilience.* In addition, the report warned against public investment into new smaller plants.⁶⁵

Portions of the current discussions taking place in the US are applicable to the Canadian beef industry because our markets are so highly integrated. Calls for limiting the use of AMAs, such as the 30/14 or 50/14 proposals or NCBA’s 75% Plan would have impacts to the US and Canadian market. And while market transparency may be improved with increased negotiated cash trade that does not guarantee stronger prices. Multiple suggestions have been made to improve market transparency which is important for a market to operate efficiently.

The Canadian cattle industry has an added layer of challenge given our voluntary reporting methods currently being used. Finally, although we recognize that supplies have been larger than packing capacity since 2016, that will not always be the case and caution must be taken when considering the expansion or building of packing capacity.

⁶² Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 2*

⁶³ Rude, Harrison, Carberg, 2010, *Market Power in Canadian Beef Packing*

⁶⁴ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Introduction*

⁶⁵ Mussell and Robinson, 2021, *Managing Surge Capacity and Boosting Resilience in Meat Supply Chains*

FURTHER RESEARCH CONSIDERATIONS FOR THE CANADIAN BEEF INDUSTRY

The beef supply chain is complex and understanding the different segments is important to decipher the influences on economic decision. Although market price is rooted in the economic fundamentals of supply and demand, there may be other factors impacting supply chain decisions. Understanding how proposed policy changes can impact traditional signals in the market is important. The following discussion identifies further research considerations that could be further explored in the Canadian industry.

Retail Consolidation

In the past a lot of resources have been dedicated to the fed cattle/wholesale spread and potential market power of the packing industry, but much less has been done with regards to the influence retailers exude on the market. The focus has been on the concentration of the big four in the US packing industry, yet consolidations has happened on the retail stage as well.

- *What work is needed to improve understanding of retail consolidation and its influence on the supply chain? In addition, what impact will sustainability goals of big retailers and food service operators have on market price signals going forward?*

Packer Utilization and Concentration

Packing plant utilization rates have been over 90% since 2010, but differ regionally. In the West, federally inspected packer utilization averaged 96% in 2021 compared to 88% in the east.⁶⁶ As mentioned in the market structure section of this report, economies of size are important, but also the throughput (utilization). As Koontz states, “for any given facility, the costs are lowest when running the plant at closest-to-potential capacity”.⁶⁷ While imports of US feeder cattle have supported the fed slaughter volumes recently with a stable/declining cow herd, the US cow herd continues to be impacted by drought with January to June 2022 cow slaughter +6.2%. In an industry where packer concentration is already high, the risk of losing a packer and reducing competition is concerning.

- *What happens to utilization rates in the coming years and how does this impact packer profitability? How does the cattle cycle limited beef packer expansion?*
- *How often or what should trigger industry to review market power and subsequent packer margins?*

⁶⁶ Canfax

⁶⁷ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 5

Producer Profitability

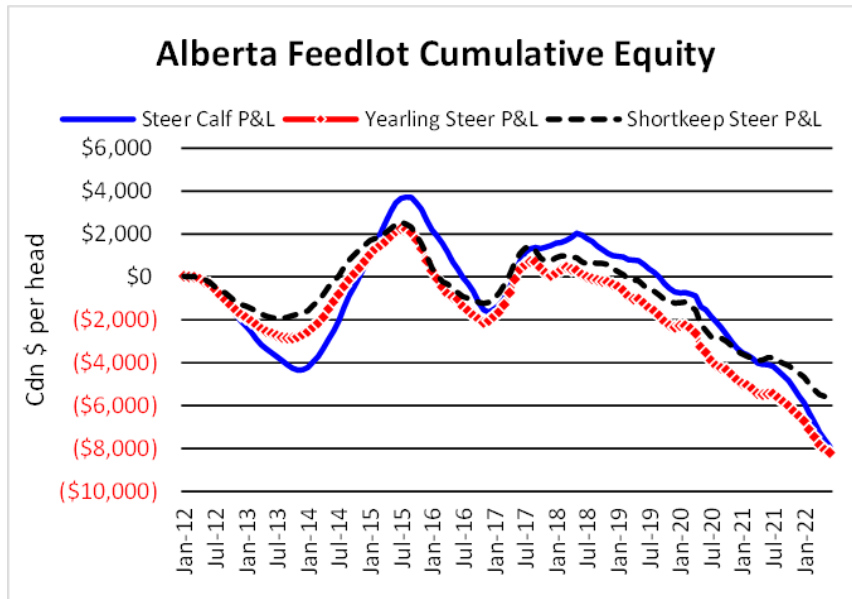


Figure 7. Alberta Feedlot Cumulative Equity
Source: Canfax TRENDS

Fed cattle profitability on the cash market suggest that cattle feeders have continued to lose equity on all classes of cattle since 2019, however expansion has occurred particularly since 2018. Further work is needed to understand what is driving feedlot expansion/contraction and the factors influencing the economic drivers that were not as prevalent previously such as farmland values, risk management options, and other revenue streams.

In the FCC 2021 **Farmland Values** Report, farmland values increased nationally by 8.3% in 2021 (Table 4), the largest annual increase in the past four years, but below the double-digit increases recorded from 2012-2015. FCC attributed this to sustained demand, historically low interest rates (Figure 8), favorable commodity prices, and tight supply of farmland available for sale.⁶⁸ In southern Alberta where approximately 60% of AB/SK feedlot capacity⁶⁹ takes place, farmland values increased 6.2% in 2021, while Ontario had the largest provincial increase with farmland values increasing 22.2%.⁷⁰ FCC notes that “in many cases the increase in farmland values has contributed more to the wealth of the farm than the income derived production”.⁷¹

- *How do farmland values influence cattle feeders purchasing decisions? Will land values ever fall like they did in the early 1980’s and early 1990’s resulting in a mass exit of producers due to being over-leveraged?*

Table 4. Canadian Annual % change in farmland Values

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
19.5%	22.1%	14.3%	10.1%	7.9%	8.4%	6.6%	5.2%	5.4%	8.3%

⁶⁸ 2021 FCC Farmland Values Report

⁶⁹ Canfax 2021 Annual Report, Demographics

⁷⁰ 2021 FCC Farmland Values Report

⁷¹ Farm Economics The Basics, FCC

Source: 2021 FCC Farmland Values Report

Historically low interest rates at banks have made borrowing money against assets like land attractive. In addition, there is outside investment custom feeding cattle. But it is unclear on how prevalent this is in the industry or how it impacts feedlots.

- *How does investor money from outside the industry impact feedlot viability and decision making?*



Source: Bank of Canada

Figure 8. Average Canadian Business Borrowing Costs 2017-2022

Source: Bank of Canada, FCC

As with any model, the Canfax TRENDS report has limitations based on the assumptions worked into the model. Profit/loss is calculated using the cost of feeding the animal. This would assume a total cost of gain (TCOG) which includes yardage and margin collected by the owners of the feedlot. Therefore, losses reflected in the data may not be to the same degree if feedlots were able to manage their projected versus actual feed costs. Although this can be possible during relatively stable feed prices, the rapid appreciation of feed grain prices during 2021-22 caught many off guard. In addition, the Canfax TRENDS report is based on a cash-to-cash market of which the procurement mix suggests is a smaller proportion of sales (23% in 2013).

- *What does profitability look like when you take into account risk management tools and basis negotiations? Are there times during the feeding period that have provided opportunities for profit? Can some cattle feeders negotiate better than average basis agreements for forward contracts?*
- *How does risk management of inputs like feed grains impact profit margins?*

The Canfax Trends Report calculates profit and loss in the Alberta feedlot sector as revenue from the sale of the animal less the cost of purchasing and feeding the animal. Although, other revenue streams may be a small consideration currently, there is potential for that to grow in the future.

- *Are there other streams of revenue influencing cattle feeder decisions? How does sustainable financing such as the sale of carbon credits impact decisions and the pricing signals through the beef supply chain?*

Many cow/calf producers have been profitable for the past ten years. However, when comparing the return to labor costs compared to that of the grain industry, producers may find themselves debating whether the profitability has been enough to justify maintaining or expanding their herds. Recent droughts, increasing costs of inputs, and lack of labour availability have amplified their frustrations. Kevin Hursh of Hursh Consulting and Communications stated in a 2022 article that cow/calf producers are fighting an uphill battle and that return on labour, management and investment are lower than grain farming.⁷²

- *What is needed to encourage cow/calf producers to stay in the business? Are there technology improvements that can help with labour costs?*

⁷² Hursch Consulting and Communication, May 2022, <https://hursh.ca/2022/05/cattle-struggle-to-compete-with-grain/>

APPENDIX 1: North American Cattle Market Structure

When looking at the various profitability across sectors in the beef complex, it not surprising that there is frustration within the industry. One only must look at the increases in retail and boxed beef prices to question whether the producer is receiving their share as consumers pay more. In its entirety, the cattle and beef industry represents an extraordinarily complicated set of cattle production and marketing activities which provide the source of a massive set of beef products marketed through a diverse set of final markets and all coordinate by a multitude of interrelated market transactions.⁷³ As Dr. Darrell Peel from Oklahoma State University terms it, the US cattle and beef industry may well be the most complex set of markets in existence. Given the integration of the North American beef industry, one would expect this situation to be the same for the Canadian cattle and beef industry as well.

The illustration below depicts how concentration narrows going from the rather dispersed cow/calf sector into a concentrated feedlot and highly concentrated packer sector before widening out again through processing and outlets to the consumer. The beef carcass is transformed into thousands of beef products and marketed through retail grocer, food service, and exports.

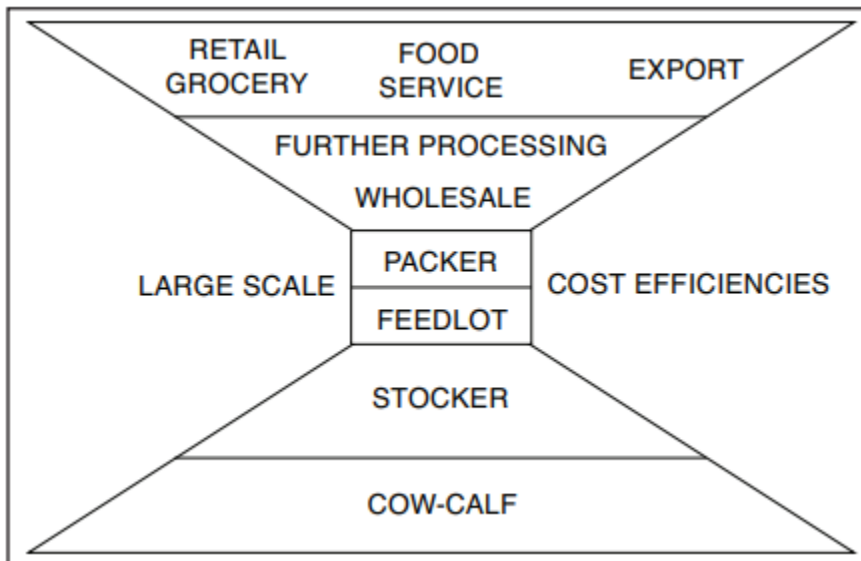


Figure 9. US Beef Industry Structure⁷⁴

Source: US Beef Supply Chain: Issues and Challenges (Fisher, Outlaw, Anderson)

⁷³ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁷⁴ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

As Dr. Peel stated, in the US there have been structural changes and an evolution of industry characteristics and practices that have led to the current state of the industry. The table below chronicles the US industry impacts Dr. Peel referred to. In addition, information pertaining to changes to the Alberta beef industry have been included for context.

Table 5. Structural Changes and Industry Practices

Time Period	United States Beef Industry	Alberta Beef Industry
1960-1980	<ul style="list-style-type: none"> • Introduction of boxed beef • European continental genetics • Development of commercial feedlots in US Plains area 	<ul style="list-style-type: none"> • Development of feeding sector • Increase in livestock sharing, feeding and leasing arrangements • Consumer demand for higher grade beef • Grain surplus in late 1960's that resulted in converting grain to dollars through feeding cattle
1980-2000	<ul style="list-style-type: none"> • Increased packer concentration • Growth in cattle feeding • Increased beef grading • Development of value- based cattle marketing • Changes to beef marketing • Growth in international beef and cattle trade • Captive supply concerns 	<ul style="list-style-type: none"> • Beef Carcass Grading system changes in 1992 • Increase in fed cattle exports post CUSTA (1989); NAFTA (1994) and removal of the Crow Rate • Concentration of packing capacity in Alberta • Development of new beef export markets and products • Evolution of fed cattle marketing from public stockyards to sealed bids • Development of large commercial feedlots in late 1990s • Net feeder importer in 1999 and 2000
2000-2010	<ul style="list-style-type: none"> • Beef demand recovery from late 1990's • Increase in alternative fed cattle marketing arrangements • Growth in ethanol industry • Development of branded specialized beef markets 	<ul style="list-style-type: none"> • 2001/2002 drought • 2003 BSE • Rapid appreciation of Canadian Dollar • Ethanol demand increased feed grain prices • Increased use of forward contracts to manage market risk and volatility
2010-current	<ul style="list-style-type: none"> • Historical US drought in 2011-2013 • Reductions in packing capacity • First significant cyclical expansion in cattle numbers in 25 years • Growth and expansion in global beef trade • August 2019 fire at Halcomb, Kansas packing plant • COVID-19 pandemic • Increased use of beef semen in dairy cows, resulting in more dairy-beef crosses in feedlots 	<ul style="list-style-type: none"> • Introduction of Cattle Price Insurance • Feeder cattle increased use of satellite sales • Development of Branded beef products e.g. Aspen Ridge, Certified Sustainable Beef Framework Dec 2017 (Cargill's Certified Sustainable Beef program) • Enhanced Price Reporting by Canfax from Sept 2014 to Sept 2017, to capture formula and forward contracts • Expanded feedlot capacity 2016-2020 • US NW plants announced they are not taking dairy-type cattle due to capacity limitations in mid-2017 • Net feeder importer 2019-2021 • Increased use of beef semen in dairy cows, resulting in more dairy-beef crosses in feedlots

Sources:

Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges

Nielson and Prociuk, 1998, Start to Finish

CRS Fact Sheet October, 2018

CRS Fact Sheet April, 2021

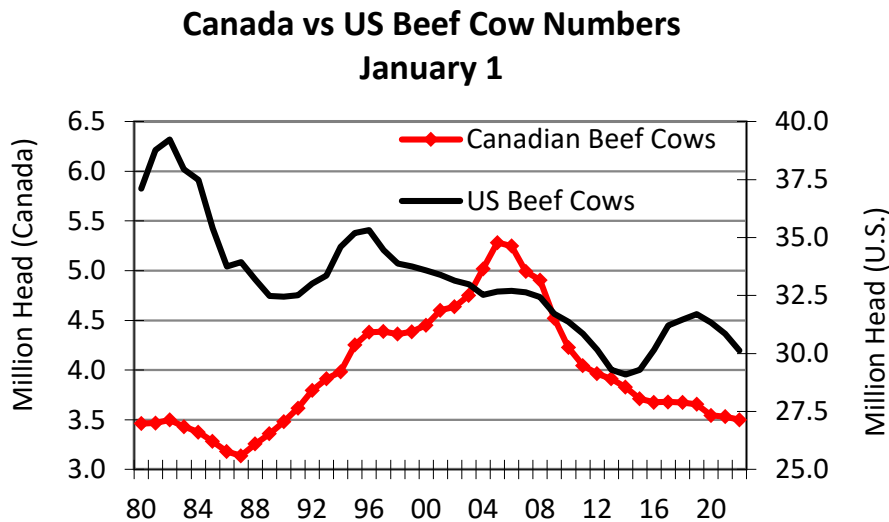
Supply

Supply is the sellers' willingness to produce and sell the product.⁷⁵

The Cattle Cycle

The common assumption is that the cattle cycle repeats the cyclical pattern of cattle numbers from low to low over 10 years, however in the US the last seven cycles have lasted between 9-14 years. The last peak of US of all cattle and calves inventory happened in 2019 at 94.8 million head, while January 2022 saw US total cattle and calves inventory at 91.9 million head (3% reduction). Of the 39.48 million total cow herd in the US, 76% are beef cows, but it is important to remember both beef and dairy cows source the calf production that supplies cattle for the beef industry.

While the North American cattle industry is integrated, the Canadian cattle cycle has not always followed the US cycle. External market factors such as drought, competition with farmland, profitability in other enterprises, and increased input costs to name a few have exacerbated the liquidation phase of the current cycle. The Canadian cattle market is still largely influenced by the US herd and its cycle.⁷⁶



Source: Statistics Canada, USDA

Figure 10. Canada vs US Beef Cow Number, January 1

Source: Statistics Canada, USDA

C. Robert Taylor, board member of the American Antitrust Institute would argue that cattle cycles have flattened out over time and are becoming much less important than in the distant past.⁷⁷ As pounds per cow produced increases, the changes in the cow herd will be smaller than what has been seen historically.⁷⁸ In the US, beef production per cow has increased more than 400 lbs from 1950-2020.⁷⁹

⁷⁵ <https://www.ag.ndsu.edu/aglawanmanagement/agmgmt/sourcematerials/demandsupply>

⁷⁶ CRS Fact Sheet, March 2022

⁷⁷ C. Robert Taylor, 2022, *Harvested Cattle, Slaughtered Markets?*

⁷⁸ April 2021 CRS Fact Sheet

⁷⁹ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and*, Chapter 1

However, the biological lag from when a market signal is received and the industries' ability to respond with either more or less beef means there will always be a cattle cycle, to some degree.

Beef production is the output combination of the number of head and weights slaughtered. Despite the overall decline in the cattle herd on both sides of the border, beef production has continued to grow through increased productivity as a result of increased carcass weights (US steers up 251 lbs and heifers up 288 lbs from 1960-2020), improved management, and production efficiencies.⁸⁰ In Canada, beef production increased 25% from 2015-2019 supported also by feeder imports from the US.⁸¹

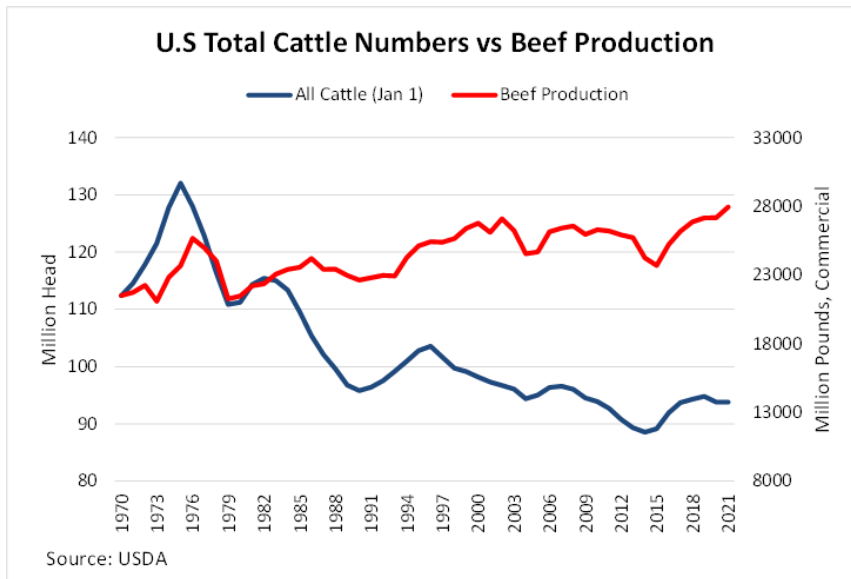
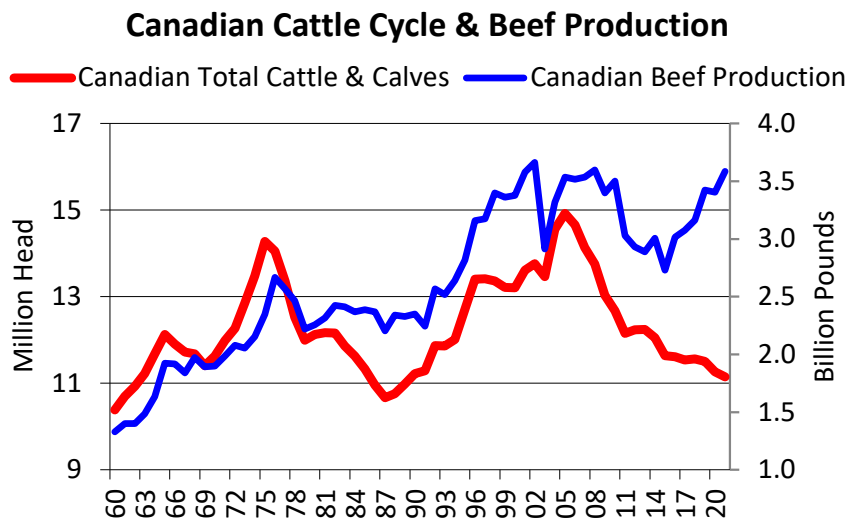


Figure 11. US All Cattle and Calves Inventory and Annual Beef Production 1970-2021
Source: USDA, Canfax



Source: Statistics Canada

Figure 12. Canadian Cattle Cycle and Beef Production

⁸⁰ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁸¹ CRS Fact Sheet, April 2021

Source: Statistics Canada, Canfax

Feedlot Capacity

The US feedlot capacity has increased roughly a million head in the past 20 years despite declining cattle numbers.⁸² US producers have achieved this by reducing turnover rates and adapting their distribution of placements. In Canada, the majority of cattle feeding takes place in Alberta and Saskatchewan and the AB/SK Cattle on Feed has been reported by Canfax since 2001. Bunk capacities during 2001-2012 ranged between roughly 1.6-1.7 million head, although there was a steady decline starting in 2008. The decline in bunk capacity continued until 2015 to a low of 1.4 million head. Feedlots respond to beef demand both domestically and globally.⁸³ In recent years feedlot capacity in both the US and Canada have increased. On January 1, 2022, US feedlot capacity was at 17.2 million head, while AB/SK was at 1.69 million head. In Canada, CRS has suggested the condition of a two- stage cycle, where there is a declining to stable cow herd, while the cattle feeding capacity has increased. This increase as been supported by feeder imports from the US.

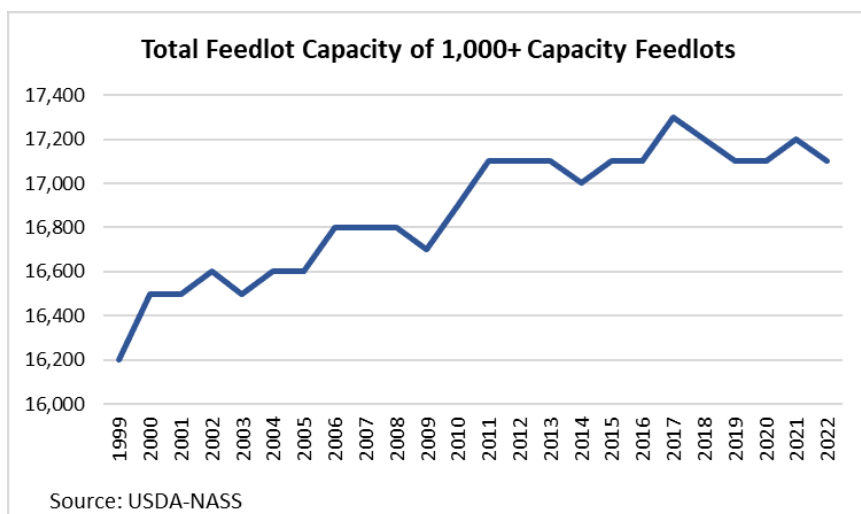


Figure 13. US Feedlot Capacity, Jan 1, 1000 head, 1999-2021

Source: USDA-NASS, compiled by LMIC⁸⁴

⁸² Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 1*

⁸³ CRS Fact Sheet, April 2021

⁸⁴ Fisher, Outlaw, Anderson, 2021 *U.S. Beef Supply Chain: Issues and Challenges, Chapter 1*

AB/SK, Jan 1 Feedlot Bunk Capacity

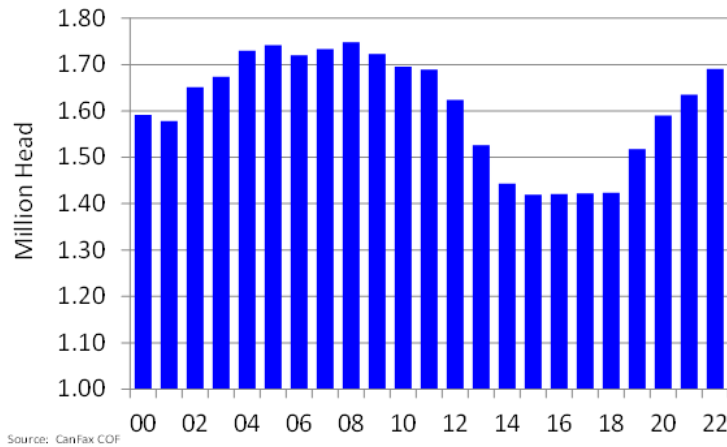


Figure 14. AB/SK Jan 1 Feedlot Bunk Capacity
Source: Canfax, COF

Feedlot Concentration

Consolidation has taken place in the Canadian feedlot industry as well. In the early 2000’s, the number of feedlots in Alberta and Saskatchewan as reported by the Cattle on Feed Demographics Report ranged between 230-240 finishing yards and shrunk to 150 yards by 2015. Sector capacity began to expand in 2019 and has grown further into 2021 with 169 yards with a capacity of 1.69 million head. As with the packing industry, economies of size also pertain to the feeding industry. In 2021, large feeders (>10,000 head capacity) represented just under 75% of the capacity compared to just under 64% in 2012. Whereas small and midsize feedlots represent 8% and 17% of capacity respectively in 2021 down from 14% and 22% respectively in 2012. In addition to economies of size, large feedlots may have the ability to negotiate more advantageous forward contracts or formula grid arrangements than smaller seasonal feeders.

Packer Concentration

Figure 9 referred to the highly concentrated packing industry. In the US, four meat packers (Tyson, JBS, Cargill, National Beef) account for 85% of the market share. This has been relatively stable since 1990 following the rapid concentration that took place during the 1980’s.⁸⁵ Regional concentration ratios are generally even higher (Ward, 1988). In Canada the packing industry is also highly concentrated. From a national perspective, 78-79% of federally inspected fed cattle slaughter has been in the West the past 5 years with 2 meat packers, Cargill and JBS, dominating 87% market share, up from 81% in 2007.⁸⁶ Since 2012 with the addition of Harmony Beef, packer concentration in the West for the 3 packers has been at 95%. In Eastern Canada, with roughly 20% of fed cattle slaughter, one packer (Cargill) has made up 60-73% market share over the last five years.

Boxed beef technology was introduced in 1967 by Iowa Beef Processors and by the 1970’s was the dominant wholesale beef technology used.⁸⁷ Since then, packers have continued to add fabrication

⁸⁵ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁸⁶ Canfax

⁸⁷ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

facilities to produce value-added products (marinated, cooked, case-ready fresh retail beef). As Dr. Peel describes, now major packers produce thousands of products from a fabrication process that begins with several hundred carcass products and by-products of slaughter and fabrication.

Demand

Demand is a customer’s willingness to purchase a given quantity of product at a given price.

Retail Beef Demand

In the US, retail beef demand indexes show a decrease from the 80’s into the late 90’s, followed by an increase into 2004 before dropping during 2010/2011 and resuming increases since.⁸⁸ However, as Dr. Peel notes, while retail beef prices provide a general indication of beef demand they are an imperfect measure. As well the retail sector only represents one consumer channel, which became even more apparent during the COVID-19 pandemic. Prices for foodservice are not know.⁸⁹

In Canada, the retail beef demand index peaked in 2020, the highest since 1989. The domestic market is the largest most stable market for Canadian beef, however reliance on the domestic consumer is not as significant as it was in the 1980’s, making the global economy more important as the driver of beef demand.⁹⁰

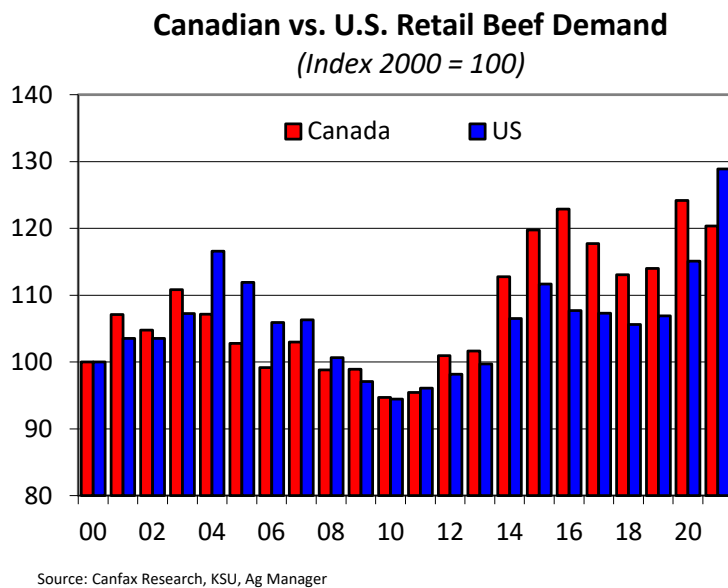


Figure 15. Canadian vs US Retail Beef Demand (Index 2000=100)
Source: CRS, KSU, Ag Manager

Beef Trade

⁸⁸ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁸⁹ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁹⁰ CRS Fact Sheet October 2020

US beef exports have grown significantly in the past 30 years except for the set back caused by BSE in 2003 and in 2021 the US was projected to be the number two global beef exporter.⁹¹ Like Canada, the US exports beef products that have higher value in the foreign markets but are less desired domestically such as variety meats. As Dr. Peel states “the value and importance of the international beef and cattle trade to the US beef industry continues to grow”. For Canada, exports have mostly trended higher since 2012 and in 2021 were the second highest in volume and the highest in value.⁹² At the same time annual beef imports volumes have been generally declining.⁹³

Boxed Beef

US Boxed beef prices are calculated from about 50 reported wholesale cut prices and attempt to capture the wholesale value of beef. However, the composition of products included in the boxed beef price has changed over time making historical comparisons more difficult. Overall boxed beef prices have generally increased since the late 1990’s. For Canada the boxed beef report ended reporting in March 2020, so the US boxed beef prices are used for reference. Users know they need to take into account currency and basis fluctuations.

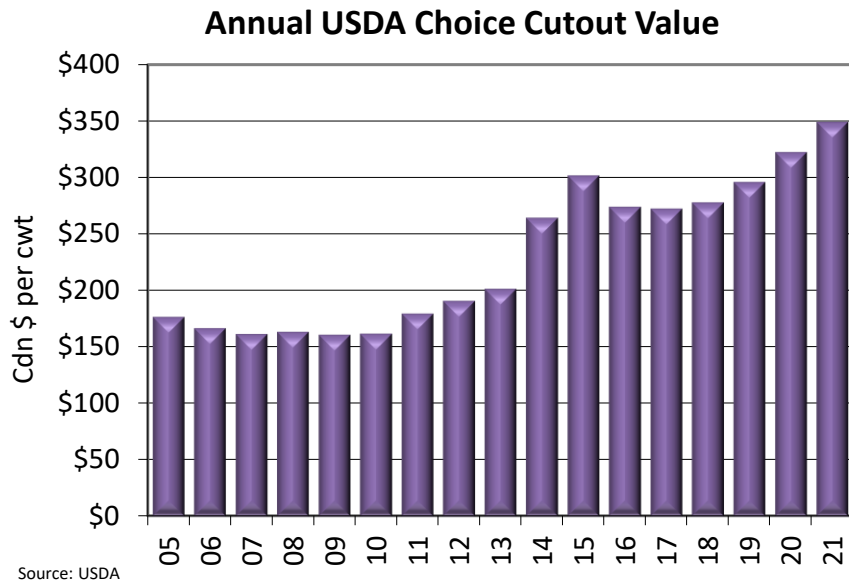


Figure 16. Annual USDA Choice Cutout Value in CDN\$/cwt
Source: USDA

⁹¹ Fisher, Outlaw, Anderson, 2021 U.S. Beef Supply Chain: Issues and Challenges, Chapter 1

⁹² Beef Watch, Canadian Cattlemen’s, May 2022

⁹³ Canfax. Personal communication.

Appendix 2. US MPR Proposals

In March 2022, four Senators called for legislation to reform U.S. cattle markets and have released an updated version of the Cattle Price Discovery and Transparency Act. The four senators are: Deb Fischer (R-Neb.), Chuck Grassley (R-Iowa), Jon Tester (D-Mont.), and Ron Wyden (D-Ore.), the bill was first introduced in November 2021. The revised bill comes after several months of working with staff at the U.S. Department of Agriculture to make technical changes that will allow them to best implement the bill. “I frequently hear from Iowa’s independent cattle producers about their struggle to get a fair price for their cattle” stated Senator Grassley⁹⁴. The updated bill would:

1. Require the Secretary of Agriculture to **establish 5-7 regions** encompassing the entire continental U.S. and then **establish minimum levels** of fed cattle purchases made through approved pricing mechanisms. Approved pricing mechanisms are fed cattle purchases made through negotiated cash, negotiated grid, at a stockyard, and through trading systems that multiple buyers and sellers regularly can make and accept bids.
2. **Establish a maximum penalty** for covered packers of \$90,000 for mandatory minimum violations. Covered packers are defined as those packers that during the immediately preceding five years have slaughtered five percent or more of the number of fed cattle nationally.
3. The bill also includes provisions to create a **publicly available library of marketing contracts**, mandating box beef reporting to ensure transparency, expediting the reporting of cattle carcass weights, and requiring a packer to report the number of cattle scheduled to be delivered for slaughter each day for the next 14 days. The contract library would be permanently authorized and specify key details about the contents that must be included in the library like the duration of the contract and provisions in the contract that may impact price such as schedules, premiums and discounts, and transportation arrangements.

In June 2022, the Cattle Price Discovery and Transparency Act of 2022 (S. 4030) passed on a voice vote with only two recorded no votes in the Senate, according to Deb Fischer (R-NE). The U.S. House also passed its version of the special investigator bill, which was opposed by the North American Meat Institute, National Cattlemen’s Beef Association (NCBA), National Pork Producers Council and National Chicken Council. NCBA said the proposal would subject every cattle producer in the country to a business-altering government mandate. Julie Anna Potts, President and CEO of the Meat Institute, said in a statement, “The Grassley-Fischer bill being marked-up in the Senate Agriculture Committee this week will cost producers in the largest cattle producing region millions of dollars, and producers around the country will lose the ability to market their cattle as they choose.”⁹⁵

This has been revised from:

1. Requires USDA to establish 5-7 regions covering the continental United States and that reasonably reflect similar fed cattle purchases.
2. Designates a set of approved pricing mechanisms for covered packers that contribute to price discovery and transparency. These include fed cattle purchases through negotiated cash, negotiated grid, at stockyards, and through trading systems where multiple buyers and sellers can make and accept bids.
3. Requires USDA to set minimum levels of purchases through approved pricing

⁹⁴ <https://www.drovers.com/news/ag-policy/senators-revise-cattle-price-discovery-and-transparency-act>

⁹⁵ <https://www.drovers.com/news/industry/cattle-market-reform-bills-advance-senate>

mechanisms that covered packers – those controlling five percent or more of fed cattle slaughter – must make.

4. Mandates that each regional mandatory minimum be not less than the average of that region’s negotiated trade for the two-year period of 2020-2021. Additionally, sets a maximum threshold for any region at 50 percent.
5. Requires USDA to conduct an initial review of mandatory minimums after two years.
6. Allows USDA to work with the cattle and beef industry to periodically review and modify regional minimums after a public notice and comment period.⁹⁶

The NCBA policy book shows that in 2020 motions were passed.

THEREFORE BE IT RESOLVED, NCBA supports a voluntary approach that:

1. Increases frequent and transparent negotiated trade to regionally sufficient level, to achieve robust price discovery determined by NCBA funded and directed research in all major cattle feeding regions.
2. Includes triggers to be determined by a working group of NCBA producer leaders by October 1, 2020.

BE IT FURTHER RESOLVED, if the voluntary approach does not achieve robust price discovery, as determined by NCBA funded and directed research, and meet the established triggers that increase frequent and transparent negotiated trade to a regionally sufficient level, and triggers are activated, NCBA will pursue a legislative or regulatory solution determined by the membership.⁹⁷

At the 2022 NCBA summer meeting the membership acknowledged that while the industry had not been successful in avoiding the triggers set by the 75% plan, they did see improvement in volumes of negotiated trade in areas such as the south. Therefore, the NCBA membership voted 80% to oppose S.4030 and does not support any government intervention that mandates how cattle producers market their cattle.⁹⁸

⁹⁶ https://www.fischer.senate.gov/public/_cache/files/b618a7af-5f34-498e-ac26-1988edb432d2/cattle-market-transparency-one-pager-updated-2-.pdf

⁹⁷ <https://www.ncba.org/Media/NCBAorg/Docs/2022-ncba-policy-book-master-copy.pdf> page 94

⁹⁸ Conversation with Tanner Beymer; NCBA senior director, government affairs

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