Alberta Beef Industry Competitiveness

Prepared For

Alberta Cattle Feeders' Association
Alberta Beef Producers

Prepared By

Serecon Inc.
with Kevin Grier Consulting

December 2019

Kevin Grier

December 2019

Alberta Cattle Feeders' Association
#6, 11010 - 46th Street SE
Calgary, AB T2C 1G4

RE: ALBERTA BEEF INDUSTRY COMPETITIVENESS STUDY

Please find attached our report on the competitiveness of the Alberta beef industry. We thank you and the members of the steering committee for your guidance and assistance throughout the project.

We hope that the report accurately captures our key finding – that while the Alberta beef industry has historically been competitive with the key US beef states, the margins have always been relatively low and attention must therefore be paid to a number of regulatory and taxation issues that could otherwise cause competitive disadvantages to this important industry.

Thank you for the opportunity to conduct this important work for the beef industry.

Yours truly,
SERECON INC.

Markus Weber
B.Sc.Ag, MBA, LL.B., P.Ag.
Edmonton Office

Enclosure

Table of Contents

EXECUTIVE SUMMARY **1**

Overview 1
Key Competitiveness Issues 1
Regulatory Issues *3*
Future Competitiveness *3*
Summary 3

BEEF INDUSTRY STRUCTURE **4**

Overview 4
Cow-Calf Production 8
Alberta *8*
United States *10*
Comparative Cow-Calf Expansion *11*
Response to Margins 11
Price Differentials 13
Canadian Challenge 13
U.S. Expansion 15
Cow Herd Summary 16
Cattle Feeding and Marketing 17
Alberta *17*
United States *19*
Beef Production 21
Alberta *21*
United States *23*
Beef Trade 25
Exports *25*
Imports *28*
Trade Balance *29*
Beef Industry Trends Summary 30
Production Trends Conclusion *31*

COMPETITIVENESS ANALYSIS **32**

Literature Review 32
Informa Economics 2006 ..... *32*
CAPI 2012 ..... *34*
Government of Alberta 2017 ..... *35*
NCFA 2016 ..... *36*
Serecon 2012 ..... *36*
Australian Agriculture 2016 ..... *37*
Revenue Performance Competitiveness 39
Cow-Calf and Cattle Feeding *39*
Fed Cattle Prices *40*
Beef Packing Pricing *43*
Cost Competitiveness 51
Feed Costs *52*

Labour Costs *58*
Fuel *58*
Head Tax *60*
Cattle Performance and Animal Health *61*
Beef Packing Operations *64*

REGULATORY ISSUES AND COMPETITIVENESS 68

Access to Labour *68*
Farm and Ranch Workplace Legislation *72*
Labour Cost Competitiveness *76*
Environmental Protection *77*
Species at Risk *81*
SRM Removal *83*
Antimicrobial Products *84*
Transportation Infrastructure *86*
Amendments to Health of Animals Regulations *87*
Changes to Transportation Regulations *89*
Comparative Impact on Feeding Sector *91*

COMPETITIVENESS SUMMARY 92

OVERVIEW 92
KEY COMPETITIVENESS ISSUES 93
Regulatory Issues *94*
Future Competitiveness *94*
CONCLUSION 95

APPENDIX: STATUTES AND REGULATIONS 1

Canadian Statutes & Regulations *1*
Alberta Statutes & Regulations *1*

Table of Figures

Figure 1: North American Cattle and Beef Industry Structure 5
Figure 2: Great Plains Region Map 6
Figure 3: Largest Beef Cow States 2018 7
Figure 4: Largest Cattle on Feed States 7
Figure 5: Canada, West and Alberta Beef Cows 2008-2018 9
Figure 6: West and Alberta Share of Canadian Beef Cows 10
Figure 7: U.S., Texas, Nebraska and Kansas Beef Cow Herd 2008-2018 10
Figure 8: Alberta Beef Cow Share of TX, NE and KS 11
Figure 9: U.S. Cow-Calf Margins and Herd Growth 12
Figure 10: Alberta/Western Canada Cow-Calf Margins 12
Figure 11: Differential between Alberta and US Steer Prices 13
Figure 12: Differential in Farmland Value Change 15
Figure 13: Texas Beef Cow Drought Losses and Recovery 16
Figure 14: Beef Cow Recovery, 2014-2019 16
Figure 15: Total Alberta Feedlot Capacity (Lots over 1,000 Head) 18
Figure 16: Alberta Feedlot Capacity Utilization Rate 18
Figure 17: Alberta and Saskatchewan Cattle Marketings, 2008-2018 19
Figure 18: US Feedlot Capacity (Lots over 1,000 head) 19
Figure 19: U.S. Feedlot Capacity Utilization Rate 20
Figure 20: U.S. Cattle Marketings (Lots over 1,000 Head Capacity) 20
Figure 21: Alberta Marketings Share of Total U.S. Marketings 21
Figure 22: Alberta Annual Slaughter 2008-2018 22
Figure 23: Alberta Fed and Non-Fed Slaughter 23
Figure 24: Kansas, Nebraska, Texas Slaughter 2008-2018 24
Figure 25: Total Slaughter Kansas, Nebraska & Texas 2008-2018 24
Figure 26: Alberta Share of Total Nebraska, Kansas and Texas Slaughter 2008-2018 25
Figure 27: Canadian Beef Exports 2008-2018 26
Figure 28: Export Share of Domestic Production 26
Figure 29: Canadian Beef Exports to United States 27
Figure 30: U.S. Share of Canadian Beef Export Tonnage 27
Figure 31: Canadian Beef Imports 28
Figure 32: Beef Import Share of Canadian Consumption 28
Figure 33: Canadian Beef Trade 2008-2018 Annual 29
Figure 34: Canada-U.S. Beef Trade Annual 30
Figure 35: Alberta-Texas Fed Steer Price Spread 2008-2018 41
Figure 36: Albert-Texas Panhandle Price Spread Weekly 41
Figure 37: Western Canadian Calf Crop 2000-2018 42
Figure 38: Total Cattle Feeding Costs Share 2018 Average 52
Figure 39: Feed Share of Total Costs Annual Average 2013-2018 52
Figure 40: Alberta Yearling Feeding Operating Cost of Gain Share (2013-2018 Average) 53
Figure 41: Alberta Barley Annual Average Price 2008-2018 53
Figure 42: Alberta Barley vs Omaha Corn Quarterly 2008-2018 54
Figure 43: Alberta Barley and U.S. Corn Production 55
Figure 44: Barley Harvested Hectares and Share of Selected Crops 55
Figure 45: Precipitation Departure from Average – 730 Day January 31, 2019 56

Figure 46: Canadian Barley Yields 2008-2018 56
Figure 47: Canadian and U.S. Agricultural Wages, 2008-2018 Annual Average 58
Figure 48: Calgary and U.S. Midwest Diesel Prices 2008-2018 59
Figure 49: Total Cost of Gain Alberta and US, 2008-2018 62
Figure 50: Alberta-U.S. Cost of Gain Relationship 2008-2018 62
Figure 51: Alberta-U.S. Cost of Gain Differential vs Grain Price Differential, 2008-2018 63
Figure 52: Alberta Cattle Feeding Margins Annual per Head, 2009-2018 64
Figure 53: Canadian and U.S. Meat Labor Costs Annual Average 2016-2018 65
Figure 54: Canadian and U.S. Agricultural Wages 2008-2018 Annual Average 77

Executive Summary

Overview

The Alberta beef industry has sales of about $5.7 billion dollars at the packing level and $5 billion at the farm level. Based on the beef sales and Statistics Canada industry multipliers, the Alberta beef industry generates approximately $18 billion in total economic activity. In addition to over 6,000 direct jobs generated by the beef industry, it creates over 57,000 jobs indirectly on the farms and all the suppliers across Canada. Direct labor income generated in Alberta amounts to about $520 million. Total labor income for suppliers and farmers across Canada amounts to $2.6 billion.

Data on production and trade shows that the Alberta industry was generally competitive over the past decade, which suggests that the industry remains capable of being competitive into the future. However, there are several cost factors that are out of line and some trends that could cause decreasing competitiveness if they continue.

This report examines the competitiveness of the Alberta industry with the states of Nebraska, Kansas, and Texas. Overall, the three states and Alberta have more similarities than differences as part of a North American cattle and beef industry structure. In addition, there are few significant differences between the three states in most aspects including cattle types, production, regulatory and business environment, supply chain structure, and presence of the same large packing companies. The most significant differences are in feed types and marketing patterns.

Broadly speaking, these comparisons hold true when adding Alberta into the comparison. All four are in the Great Plains, with similar open-air cow-calf and feedlot operation styles as a result. Despite the many similarities, our focus was on finding differences and explaining the outcomes of those differences on relative competitiveness.

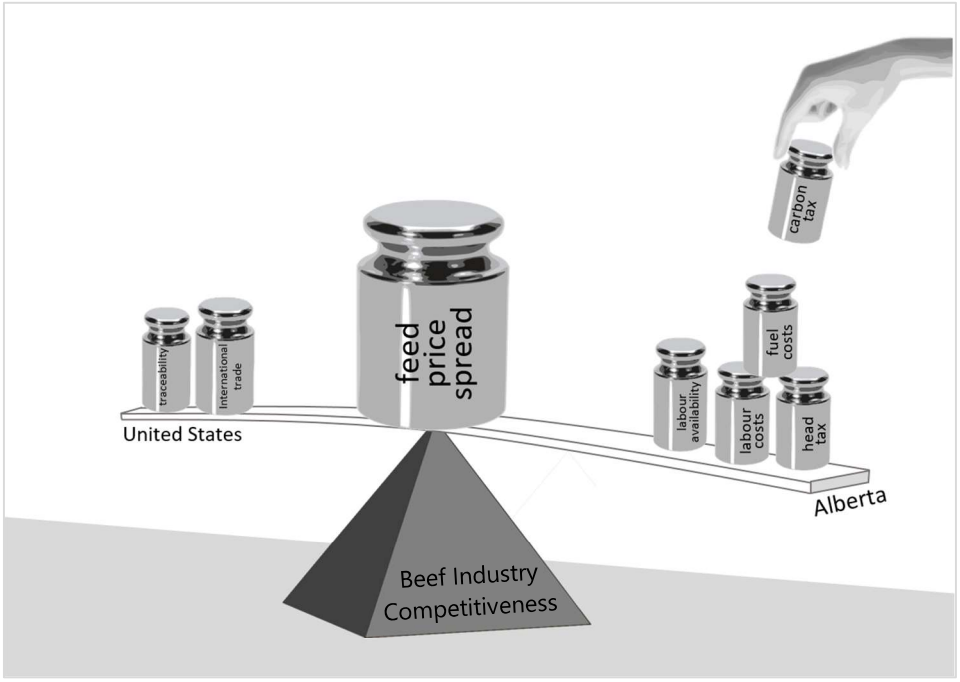
Key Competitiveness Issues

Competitiveness is defined as the ability to profitably maintain or enhance market share. By most measures, Alberta is doing that, with the only downward indicator being feedlot capacity erosion since 2003.

- Area of greatest loss and concern is relative size of cow herd (in 2008, AB was 23% of the herd for the three comparator states; in 2018, AB herd of 1.5 million head is only 19.2% of the three-state total).
- For most of the year, the return on most beef items for packers is less in Canada than the US. On average, the return by AB packing industry will be $20-25/head behind the US.
- Feeling amongst those interviewed that there is a risk of someday losing processing capacity, should find ways to diversify and focus on premium markets.
- Most stakeholders acknowledged the reality that winter climate in AB will always have an unavoidable impact on feed and fuel costs. But relative feed

costs are also one of the most variable factors from a competitiveness perspective.

- Most important cost, other than the cost of the cattle, for the feeding industry is feed, at approximately 70% of all operating costs. One of the key competitiveness benchmarks is therefore the relative feed price spread between regions.
- The competitive disadvantage from negative spreads between US corn and Canadian barley is recent, starting only in late 2017. The decreasing availability of feed barley is largely due to two factors: declining acreage share of barley, and several years of lower yields. Will greater feed wheat/corn availability and increased barley acreage driven by higher prices combine to reverse this trend?
- Labour cost differential is significant, and the spread is increasing (Canadian agricultural wages increased 3.5% over past decade, with inflation at 1.6%). The US has both lower starting labour rates and a lower rate of increase.
- Differential in smaller cost components all add up:
  - Higher cost of fuel ($0.09-0.13/litre spread)
  - Carbon tax will exacerbate the existing fuel price differential
  - Ancillary labour costs for occupational health & safety and Workers Compensation Board costs
  - Head tax in Lethbridge County
  - Differential pricing for herbicide products



Regulatory Issues

Many of the smaller cost components that reduce competitiveness are linked to regulatory burdens. Key areas of concern include the following:

- Labour issues are both top of mind and significant recent cost drivers, as much as several dollars per head. OH&S requirements, temporary foreign workers, and holiday pay are of greatest concern, especially for feedlot operators.
- Growers reported already having good packages in place for their employees, including insurance that became more expensive with WCB requirement; these ancillary labour costs are less of an issue for the states.
- Carbon tax is also of concern to most informants, especially since AB fuel costs are already significantly higher before the new tax regime implemented.
- Transport capacity and cost will become significant as transportation regulations change due to animal welfare concerns; anticipate higher relative impact in Canada.
- Various supply chain stakeholders feel that lobby efforts for beef in the US have been more effective than in Canada, point to the new Food Guide as an example of beef industry losing support.

Future Competitiveness

Canada's regulatory environment does also have many positive aspects and could be leveraged to find premium markets for Alberta beef. Both food safety and the sustainability could be emphasized in finding those types of markets, maintaining and improving the industry's competitiveness into the future:

- Canada is already strong on traceability and food safety and gaining strength in sustainability efforts. But focus on disease preparedness is needed for risk reduction.
- Trade agreements will present opportunities for getting established in new markets, hopefully to the point where processing capacity becomes the limiting factor.
- Future competitiveness will rely on finding areas of opportunity in all supply chain sectors: efficiencies, diversification, new market access, and cost reduction.

Summary

The data on trade, costing and revenues indicates that the Alberta beef industry has been competitive overall with the key counterparts in the United States. However, the beef industry has historically been a very narrow margin business, so the competitiveness balance has been and remains tenuous or fragile.

Recent changes in federal and provincial regulations and taxes have begun to put the Alberta industry at a competitive disadvantage, especially during times when the feed price spread is not in Alberta's favour. These factors must be addressed to avoid a downsizing and erosion of this very important industry.

Beef Industry Structure

This section of the report provides an overview and outline of the structure of the beef and cattle industries in Alberta and the United States. As with all sections of this report, the U.S. focus is on Nebraska, Kansas and Texas. The purpose of the section is to provide perspective on who the participants are, their size, scope and how they operate and interact. From that point there can be a comprehension of reasons for some competitive advantages and disadvantages between regions.

Overview

The cattle and beef industry in the United States and Canada have the same overall structure in terms of the main industry participants and their roles.

The starting point is the cow calf operator. The purpose of a ranch or cow calf operation is husbandry of a cow herd to produce calves and feeder animals to supply the rest of the chain. Calves are the primary revenue source for the cow calf operation. When the calves are 6 to 8 months old, they are weaned and moved to either a backgrounding operation or directly to a feedlot operation. In some cases, they are held on the farm for "backgrounding" or further weight gain.

These cow calf operations are the most diverse and least concentrated in the chain in terms of size and commercial focus. They can be small part time hobby farms or large commercial ranching operations.

The backgrounding function takes young calves or feeder animals and grows them on a rough feed until they are sold to feedlots. It could be argued that backgrounding is a separate segment of the industry chain. There is also evidence that the backgrounding function or businesses are growing in importance. For the purposes of this report it is not differentiated as a separate segment. That is because the function is often performed by the cow-calf farmers or cattle feeders. Backgrounding is also often contracted by cattle feeders as an extension of their operations. In other words, for the purposes of this report, backgrounding is treated as a function but not a distinct component of the chain.

The next component of the industry is cattle feeding. The cattle feeder procures the calf or feeder cattle from the ranching or cow-calf segment or backgrounders. Cattle feeders are also diverse in terms of size, scale and degree of commercial focus. The number of operations is not remotely as numerous as the cow-calf segment, nor are cattle feeding operations as economically diverse as the cow-calf segment.

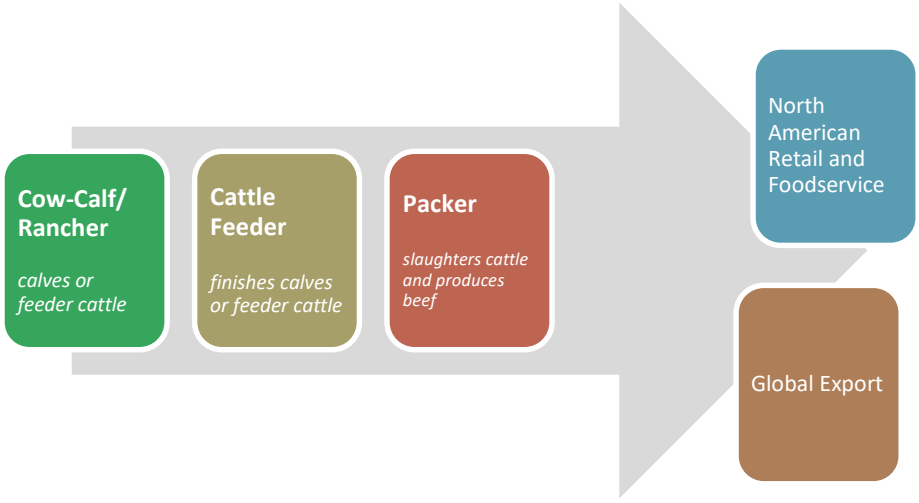
The cattle feeders' operational purpose is to feed a stocker or feeder steer or heifer to market weight for sale to the packing sector. The feed is mostly a high energy grain ration and the weight gain is typically from a few hundred pounds to over 1,000 pounds.

The next point in the industry supply chain is the beef packer. The beef packer procures the fed cattle, slaughters the cattle and fabricates and/or process beef products for sale to retail, foodservice and export markets. Beef packers also

slaughter and process cull cows and bulls from the ranching and cow-calf sectors as well as from cattle feeders that feed cows.

While it is the case that the industries are structured the same in Alberta and the United States, this is not the case for the beef industry in most of the world. The beef industry outside of North America is often a by-product of the dairy industry. In addition, even in regions with a beef-breed cattle sector, there is often not a dedicated cattle-feeding sector. The output of the industry in much of the world is very different from the high-quality fed cattle produced in Canada and the United States.

Figure 1: North American Cattle and Beef Industry Structure



Alberta and State Similarities

As a starting point based on insights derived from academic and industry participants, the degree of differences across Nebraska, Kansas and Texas as cattle and beef industry states is small. There are subtle differences in cattle types with more Brahman influence south in Texas and more "black-hided" cattle north in Nebraska. Texas has least access to ethanol by-products while Nebraska has the most. Texas and Kansas would feed steam flaked corn while yards in Nebraska would feed dry rolled or high moisture corn. Marketing patterns are more formula-based in the south and more open-market negotiated in the north in Nebraska. Kansas would fit in between Texas and Nebraska in many of these comparisons. Just as importantly, the regulatory and "business environment" for cattle production is very similar in all three states.

From a geographical, ecological and agricultural perspective, the three states and Alberta are very similar. Even the climate is similar with the expected temperature differences from north to south. In fact, the similarities are such that from a geographic perspective the three states and Alberta are each located in the broad ecological area known as the Great Plains.

Figure 2: Great Plains Region Map

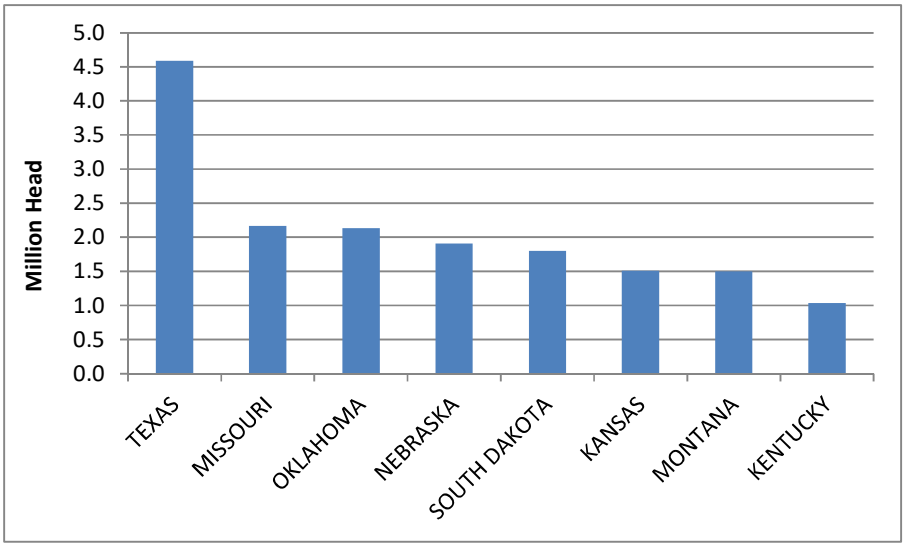
Source: University of Nebraska-Lincoln Center for Great Plains Studies

The similarities between Alberta, Kansas, Nebraska and Texas will be explored in greater detail below, but generally they are all very similar in terms of industry size and method of operation. The following outlines the similarities which will be examined in greater detail throughout the report:

1. All four are major or top cow-calf producers in each country
2. All four are major or top cattle feeding producers in country
3. All four are characterized by large-scale open-air feedlots
4. All four have large scale beef packing operations

Texas has the largest number of beef cows in the United States while Nebraska is the fourth largest and Kansas the sixth. As noted below, Alberta is the largest cow-calf province with over 40% of the total in Canada. If Alberta was a state, its 1.54 million cows would rank it higher than Kansas to put it at number six.

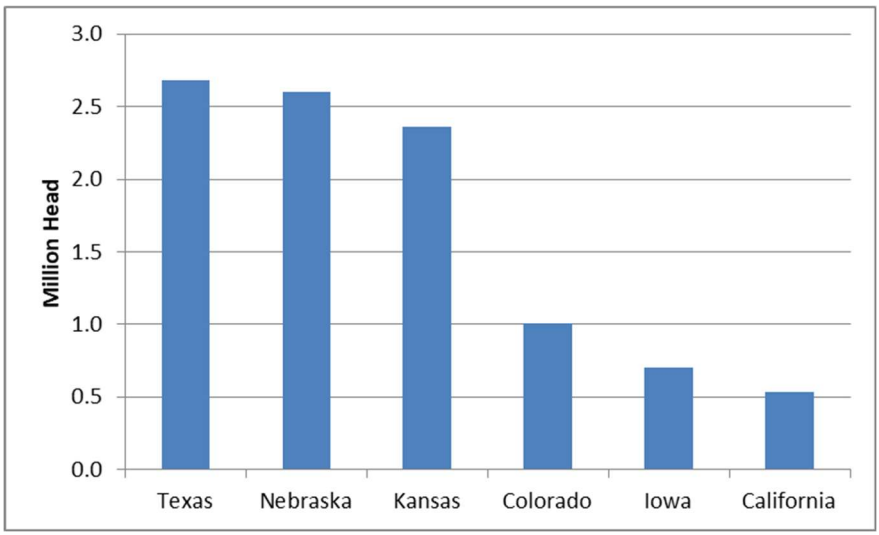
Figure 3: Largest Beef Cow States 2018



Source: National Agricultural Statistics Service

Each of the three states in question are major cattle-on-feed states. The three states of Texas, Nebraska and Kansas rank first, second, and third respectively in on-feed inventories. Texas had 2.7 million head on feed in feedlots over 1,000 head capacity as of December 1, 2018. Nebraska had 2.6 million and Kansas 2.4 million on feed in feedlots over 1,000 head capacity. The three have a grand total of about two thirds of the cattle on feed in the United States.

Figure 4: Largest Cattle on Feed States
(Feedlots over 1,000 head capacity)



Source: National Agricultural Statistics Service

For its part, Alberta had over 1 million on feed in feedlots with over 1,000 head capacity. If it were a state, it would narrowly inch out Colorado as the fourth largest on-feed state by inventory. Alberta is also the largest province in feeding capacity, with about two-thirds of the cattle on feed in Canada.

All four regions also feed cattle in a similar manner. Generally, feeding takes place in large open-air feedlots with multiple pens. This differs from other, usually smaller cattle feeding regions such as Iowa or Ontario which feed cattle in barns with concrete floors. The rationale for open air versus barns is climate. Alberta and the three states in question are dryer climates in which open air feeding is practical. This allows for scale and lower capital cost per head.

The other broad-based area of similarity between Alberta and the three states is that the large-scale multinational packers operate in those regions. In Alberta, Cargill Proteins and JBS Canada operate plants that process 4,000-5,000 head of cattle per day. JBS and Cargill rank in the top three beef packers in the United States with multiple plants in each of Texas, Kansas and Nebraska. Both plants in Canada operate as independent units, but as part of a North American cattle and beef structure.

Cow-Calf Production

Cow calf production is the base of the industry. The number of beef cows determines the supply for the rest of the industry from feeder through packing and ultimately the consumer. The focus of this section is the production and inventory status of this component of the industry. The production and inventory provide guidance as to the past and future direction of the total industry.

Alberta

Statistics Canada does not breakout the number of enterprises by type of operation. As such there is no data on the number of cow-calf operation in Alberta. With that noted, census data does report the number of operations that have beef cows. Based on the nature of the business enterprises, it can be readily assumed that the overwhelming majority of these operations are cow-calf and ranching.

As of the 2016 census of agriculture there were about 54,000 cow calf operations in Canada of which 17,000 were in Alberta. Those operations held an average number of about 70 cows in Canada and 93 cows in Alberta.

Table 1: Cow Calf Operations and Number of Cows

	Canada			Alberta		
	Number of farms	**Animals**	**Average**	**Number of farms**	**Animals**	Average
2006	83,000	5,081,596	61	25,665	2,035,841	79
2011	61,425	3,849,368	63	18,618	1,530,391	82
2016	53,837	3,732,555	69	17,022	1,576,354	93

Source: Statistics Canada. Table 32-10-0155-01 Selected livestock and poultry, historical data

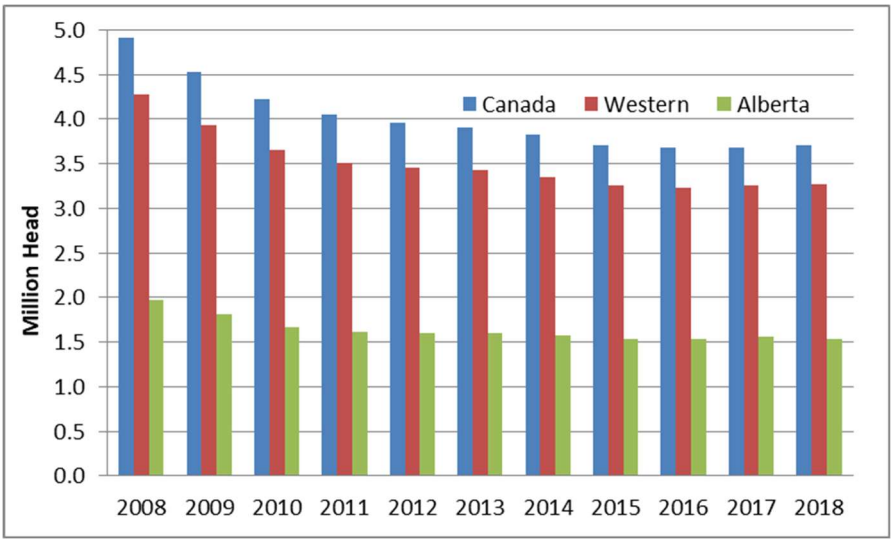
The number of cow calf farms in Canada declined at a compound annual rate of about 2.6% from 2006 to 2016. The decline in Alberta was 1.8%. The total decline in

farms in Alberta was 34% over the 2006-2016 period, while the decline in Canada was 35%. For reference the decline in total farms in Canada over that same time frame was 16% and in Alberta it was 18%.

There are likely about 16,000 cow calf operations in Alberta as of the beginning of 2019, based on historic attrition rates. As a point of reference, operations containing cattle and calves in Alberta on average had only about 260 head in 2018. While there would obviously be more cattle on those beef farms than simply the cows, the key point is that these cow-calf operations are on average very small.

As noted in Table 1, the number of cows in Alberta and Canada has been declining. The number of beef cows in Canada as of January 1, 2019 stood at 3.7 million head. Of that total, nearly 3.2 million were in the west and 1.5 million were in Alberta.

Figure 5: Canada, West and Alberta Beef Cows 2008-2018

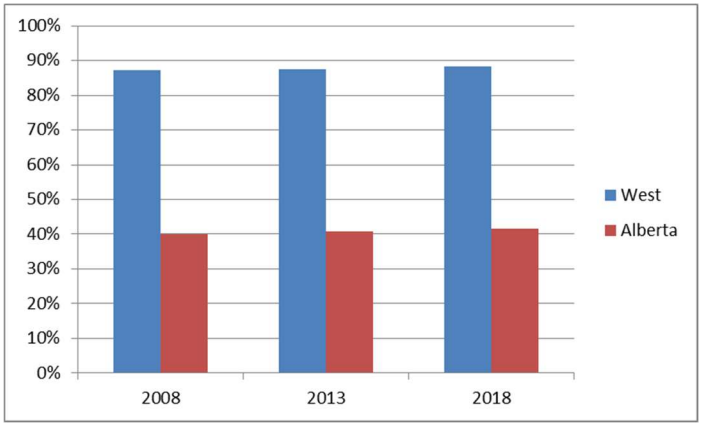


Source: Statistics Canada. Table 32-10-0130-01 Number of cattle, by class and farm type

Over the ten years from 2008 to 2018, the Canadian cow herd declined at a compound annual rate of 2.8%. The west declined 2.7% while Alberta's drop was 2.4%. The total decline amounted to 25% for Canada, 24% for the west and 22% for Alberta over the 2008-2018 timeframe. Over that time the western share has grown from 87% of the Canadian total to 88% while Alberta has grown from 40% to 41.5%. In Alberta the cow herd declined another 1% in 2019 versus 2018.

It is anticipated that the Alberta beef cow herd will decline further in 2019. The decline to start 2019 was primarily due to drought or dry conditions that have been in effect in western Canada since 2017. Producers culled herds due to feed availability, feed costs and pasture conditions.

Figure 6: West and Alberta Share of Canadian Beef Cows

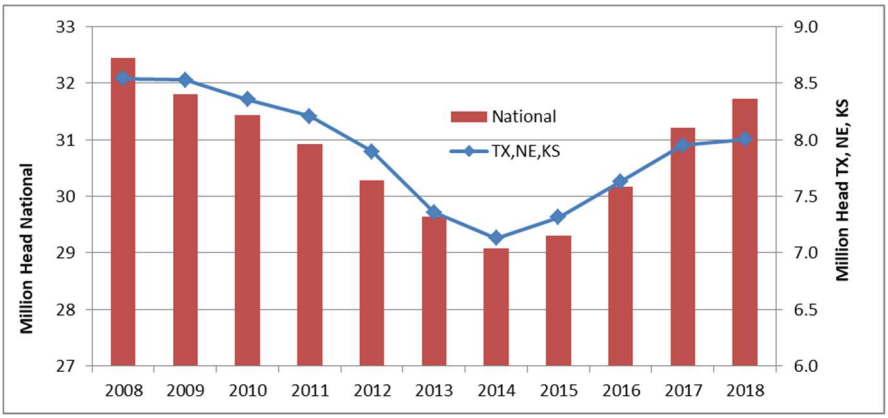


Source: Statistics Canada. Table 32-10-0130-01 Number of cattle, by class and farm type (StatsCan)

United States

The beef cow herd in Texas, Nebraska and Kansas totaled about 8 million head in 2018. The Texas herd is about 4.6 million followed by Nebraska at 1.9 million and Kansas at 1.5 million. The herd in the three states comprises 25% of the total U.S. herd. That is down from 26% in 2008.

Figure 7: U.S., Texas, Nebraska and Kansas Beef Cow Herd 2008-2018

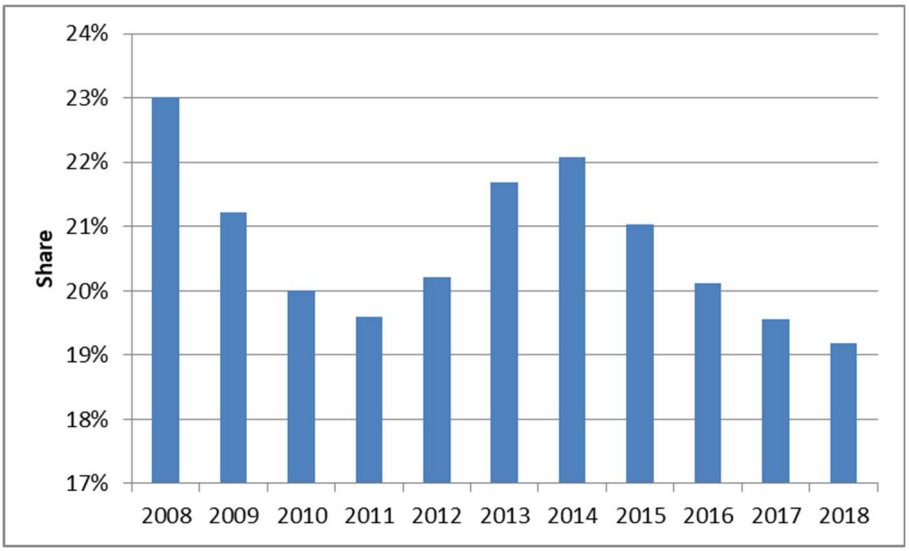


Source: National Agricultural Statistics Service (NASS)

The U.S. cow herd has been expanding since 2014, when it stood at 29.1 million head. That is a gain of 2.6 million head, or 9%. The herd expanded by 12% since 2014 in the three states. The low of 2014 was the result of a few factors including severe drought in Texas from 2012-2013. Using the 2008 benchmark, the herd has contacted by 2% from 2008 to 2018 in the United States. The three-state region contracted by 6% over that time period.

Alberta's cow inventory stood at 1.5 million head in 2018. That was 19.2% of the 8 million head in the three states. In 2008 the Alberta share was 23% for a 2008-2018 loss of 4%. Alberta's share increased during the Texas drought years but declined again post-drought.

Figure 8: Alberta Beef Cow Share of TX, NE and KS



Source: StatsCan and NASS

Comparative Cow-Calf Expansion

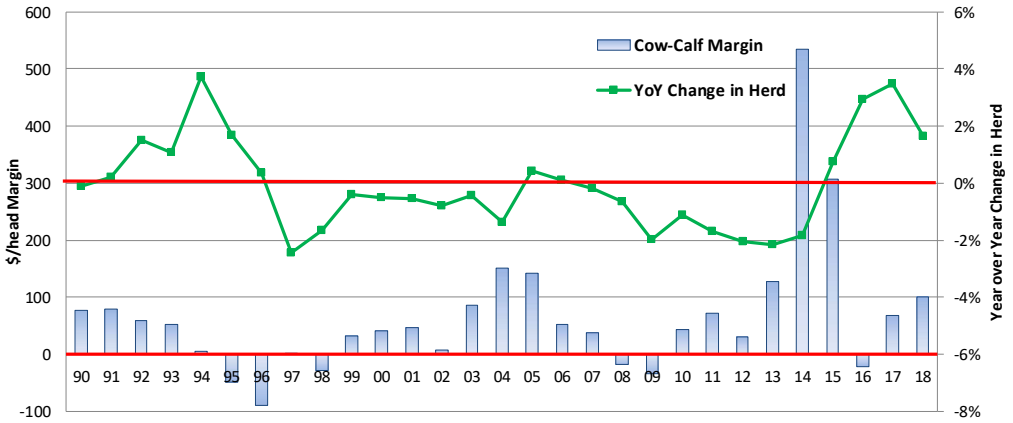
As noted above, an area of great concern is the relative size of the cow herd. The western Canadian cow herd has stagnated or declined while the U.S. herd has increased from 2014 through 2018. The cow herd is the base of the industry, so erosion in the herd or lack of growth impacts the entire chain and prospects for the industry as a whole.

Response to Margins

The logical place to look for answers to the varying rates of expansion lie in costs and returns. The efficacy of making direct cost comparisons between Alberta and the United States is questionable. In the cow calf sector, there is going to be far more variance in costs between farmers within one region let alone making assertions between different regions of Canada and the United States. Nevertheless, the overall pattern of margins in the two countries does provide some guidance.

The logical expectation is that the cow calf sector expands when it is profitable and when profits are anticipated. With that basic insight noted, that has not always been the case in both Canada and the United States. The graph below shows cow-calf margins and herd growth in the United States.

Figure 9: U.S. Cow-Calf Margins and Herd Growth

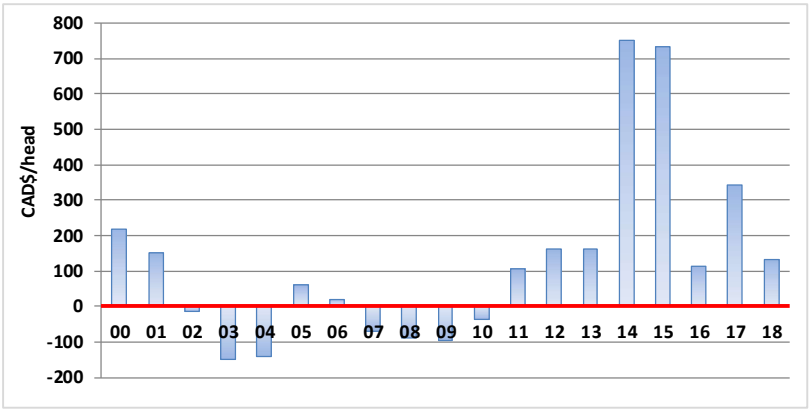


Source: USDA and Adjusted Livestock Marketing Information Center

The graph above shows that in the early 1990's as the industry profited, the herd grew. In the mid-1990's as the industry saw losses, the herd declined. Throughout much of the 2000's and into the 2010's however, despite profits the industry in the United States did not expand. In fact, expansion only began to occur in the United States after the record profits of 2014 and 2015. Part of the problem with the decline in the herd in the 2010's was the severe drought in the U.S. southwest in 2011-2014. That drought was centered on Texas. That contributed to liquidation of the herd during those years and certainly prevented expansion despite good margins for those that did not face drought.

The main point of this discussion is that profits do not necessarily mean expansion. That has clearly been the case in Canada and more particularly in western Canada. The graph below shows cow-calf margins for western Canada as estimated by Canfax. As can be seen, margins moved from negative to sharply positive from 2007 through 2014 and into 2018. Despite the very profitable period from 2011 through 2018, there has been little or no expansion, in contrast to the expansion that has occurred in the United States.

Figure 10: Alberta/Western Canada Cow-Calf Margins

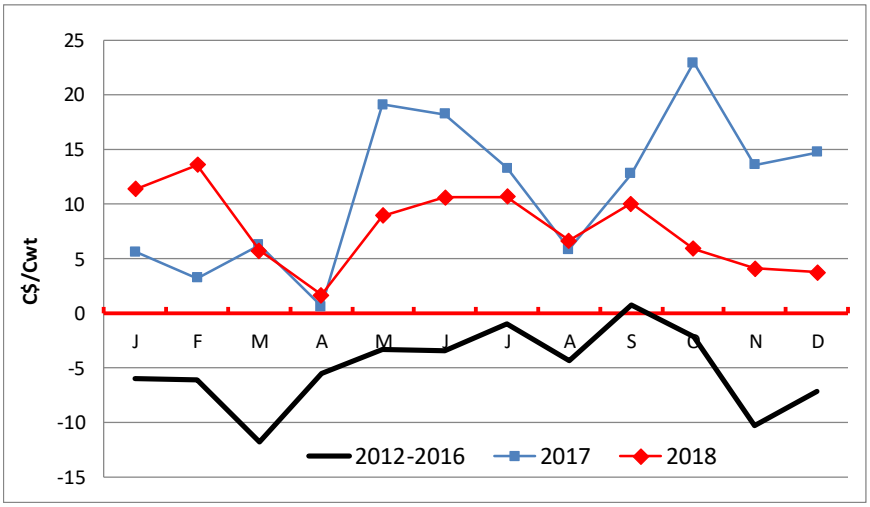


Source: Canfax

Price Differentials

As will be noted below in the section on the feeding sector, the Alberta fed cattle price was unusually strong compared to the United Stated fed cattle price. This in turn has resulted in very strong feeder and calf prices in Alberta compared to the United States. In fact, the norm for calf prices, as with fed prices, is for Alberta prices to be lower than U.S. prices. That lower price relationship has been the case on average, but in 2017-2018 that has been reversed. In other words, as with fed prices the calf prices have been unusually strong relative to the United States.

Figure 11: Differential between Alberta and US Steer Prices
(Alberta 500-600 Weight less U.S. 500-650 Steer Price)



Source: Canfax and USDA Economic Research Service

Looking ahead, this report argues that the fed price spread will likely return to its historic negative levels. As such, the calf price spread will probably also return to its more historic norms. The lack of expansion in Canada cannot be blamed upon poor price spreads on the prairies compared to the United States.

Canadian Challenge

The question then is why there has been no expansion in Canada while there has been in the United States. The answers lie in a combination of economics and demographics. Regarding the economics, the focus is often on opportunity costs. That is, while there may be positive returns in cattle, there are other opportunities that provide greater returns and incentives.

One important aspect of the cow-calf industry for decades has been that it uses less expensive or marginal land. In fact, that is one of the most important and positive aspects of the industry: it creates food and wealth using land that is not capable of doing so in other enterprises.

One key challenge in that regard is that land values have been increasing dramatically in western Canada. According to the latest Farm Credit Canada (FCC) Farmland Values Report since 2000, Alberta farmland values have increased faster than the Canadian average in 11 of those 18 years. In 2018 Alberta and Saskatchewan land values grew by 7.4% compared to a national average of 6.6%.

Serecon has found that on average, Southern Alberta in particular has seen astounding increases of 16% in 2018 alone[1], though much of this is driven by demand for irrigated farmland in numerous irrigation districts as producers increase their land base largely for anticipated increases in potato processing capacity. Central and Northern land value increases were relatively modest in comparison to previous years, but land there still appreciated 6-8% in 2018.

Another important point is that the prices of many field crops have been higher since the mid-2000's. These higher prices have led to more marginal land going into crops. Land that did not previously pay well for crop production is now being farmed, partly due to economic opportunities and partly due to improved farming technologies making production less vulnerable in years with lower moisture levels.

The bottom line for Alberta cow-calf operators or potential new entrants is that land in cattle regions can still trade for over $400,000 per quarter-section of land (160 acres). Most potential new entrants have not been able to calculate a return on investment by running a small cow herd of 30-100 cows for five months of the year.

Farmers and cow-calf operators have often concluded that farmland values have increased to the point where crop production is significantly more lucrative than ranching.

Further to that, Canfax research as well as estimates by cow-calf operators and extension agents indicate that cash costs are about $800 per calf in Alberta. This does not include paying for the cow. In recent years a good "rule of thumb" for producers would be returns of $1,000 per cow. As such, that return only narrowly covers operating costs, let alone the amortization of the cow.

From the perspective of ranchers or potential farmer entrants, equipment/labour costs are formidably expensive and therefore require more throughput to pay for them. Ranchers and farmers perceive this as a serious deterrent to entry or expansion. They estimate that it is easier to expand grain operations with new equipment and the same labour, rather than to consider expanding their cow/calf operation.

The issue of stagnation or lack of growth becomes self-re-enforcing. As land remains unused for ranching for some time, basic infrastructure such as fencing and feeding equipment can come into disrepair. In addition to the capital cost of restocking the herd itself, these capital investments required to rebuild a herd can act as a significant upfront constraint.

In addition, given the labor requirements in ranching versus farming, some of the regulatory issues addressed later in this report come into play. Cow-calf operators note that expansion would require hiring outside labour, which could lead to issues with Workers Compensation, minimum wages, and holiday pay. When combined with the inherent difficulties in hiring staff with the right skill set for ranching, operators will often decide to maximize family labour and then stay that size rather than expanding.

[1] Farmland Value Trend Newsletter. Serecon, 2018.

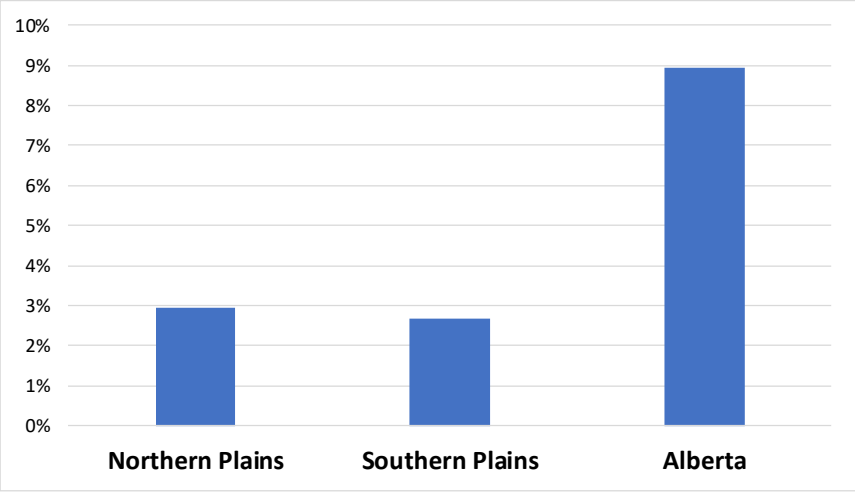
Established ranchers have equity they can rely on to get them through the bad times, but potential new entrants do not have that base of equity and are not able to calculate the cash flows that would be necessary to sustain a new or expanded cow-calf operation. As the older industry participants leave the business there are often no new entrants and the herd shrinks.

Finally, there is also a short-term impact as the prairies have seen very dry weather over the past two years. This dry weather has resulted in higher feed costs and reduced pasture availability. This in turn has resulted in many more females being culled than would otherwise be the case.

U.S. Expansion

In the United States, farmers and ranchers obviously face the same issues, but perhaps to a lesser extent. Land values in cattle regions have not been increasing as aggressively. For example, AgProfessional noted that in 2018 the Texas Panhandle, which is an exceptionally strong cattle production region, saw prices decline. Based on comparisons of changes in land values on U.S. pastureland compared to Alberta farmland overall, the land value issue appears to be a very important barrier. From 2014 to 2018 farmland values in Alberta increased by an annual average of nearly 9%. Pasture values in the northern and southern plains of the United States only increased by less than 3% each. The USDA data shows that Northern Plains cropland declined by 2% on average from 2015 through 2018 while Southern plains cropland values increased by 6%. The farmland versus pasture is not directly comparable but it does show the issue that farmers and ranchers face in each region. Both of the US regions have average increases that are much lower than the Alberta average.

Figure 12: Differential in Farmland Value Change
(Alberta Farmland vs U.S. Plains Pastureland, 2015-2018)

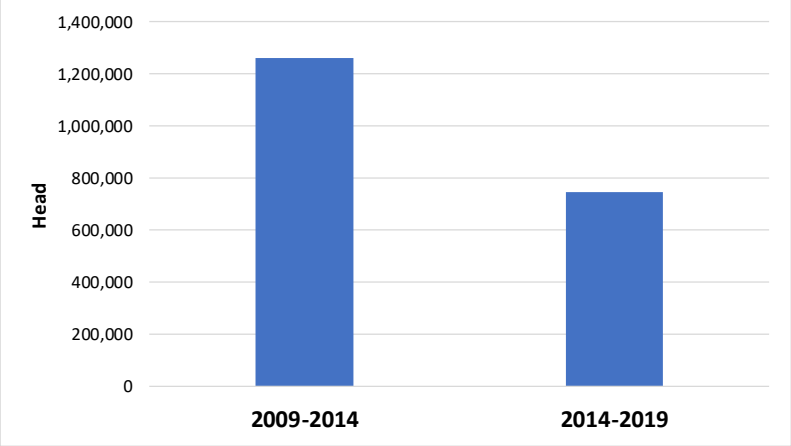


Source: Farm Credit Canada and USDA Agricultural Marketing Service

Another important component of the expansion in the United States is that a significant share of the expansion is simply re-stocking after the severe drought which began in 2010. Since 2000, the longest duration of drought in Texas was 271 weeks beginning on May 4, 2010 and ending on July 7, 2015. From 2009 through 2014 Texas reduced its beef cow herd by nearly 1.3 million head. From 2014 to 2019,

the herd expanded, but by less than one million head. While the Texas herd expanded by an impressive 19% from 2014 to 2019, that expansion did not fully recover the prior losses.

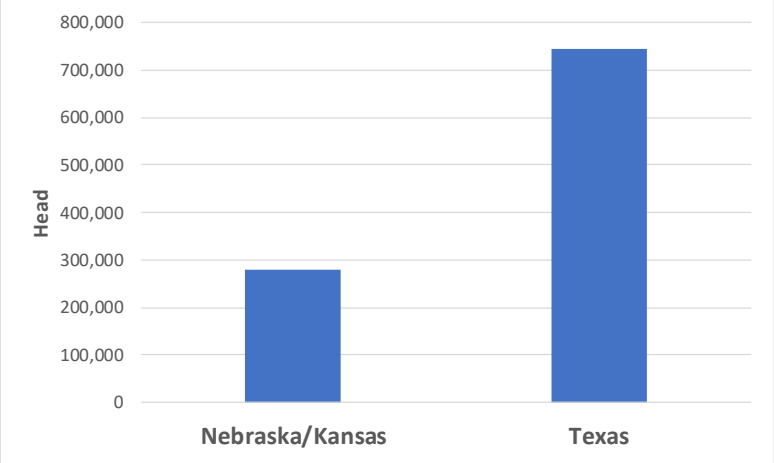
Figure 13: Texas Beef Cow Drought Losses and Recovery



Source: National Agricultural Statistics Service

In Nebraska and Kansas, herd losses were minimal over the 2010-2015 drought period in comparison to Texas, but so was the recovery expansion.

Figure 14: Beef Cow Recovery, 2014-2019



Source: National Agricultural Statistics Service

Cow Herd Summary

The expansion in the United States compared to Canada's stagnation is at least in part due to the restocking in the state of Texas. Canada did not experience such a devasting drought or experience the huge losses seen in Texas. The recent U.S. expansion should therefore be seen in that context – recent growth is exaggerated because it is simply an attempt at recovering the losses in the drought. However, there were modest expansions in the cow herd Nebraska and Kansas, compared to little or none in Alberta.

It is of great interest to note also that low moisture levels on the prairies over the last two years have been a factor contributing to the lack of cow her expansion. The drought in Canada is occurring at a time in which the industry could or should be expanding. That contrasts with when the U.S. drought occurred at a time of natural decline. This makes the contrast between the two countries even greater.

The other important challenge for the Alberta industry is that there are other agricultural enterprises – especially field crop production - which provide greater opportunities. These opportunities have in turn driven up land and other asset values, which in turn make the cow-calf proposition less appealing. Given relative land values, this does not appear to be happening in the U.S. states. There are fewer alternatives or the barriers to expansion are less in the three U.S. states examined.

The key point is that the western Canadian cow herd did not expand when margins were extraordinary. It did not expand when the prairie calf prices were at a premium to the U.S. calf price. Margins are not likely to see the levels of 2014-2015 again in the near future and it is unlikely that Canadian calf prices will go to a premium to the U.S. for many years. Since the herd did not grow at a time with very positive signals, this likely means that the Alberta industry cannot expect to see the cow herd grow significantly for many years. The U.S. herd is likely to begin to decline in 2020 and the western Canadian herd will likely follow.

Cattle Feeding and Marketing

The statistical focus of this section of the report is on those feeding operations with capacity greater than 1,000 head. These operations comprise the overwhelming majority of the operations in Alberta and the three states. In addition, these operations are the only ones surveyed for "Cattle on Feed" reports in both Canada and the United States.

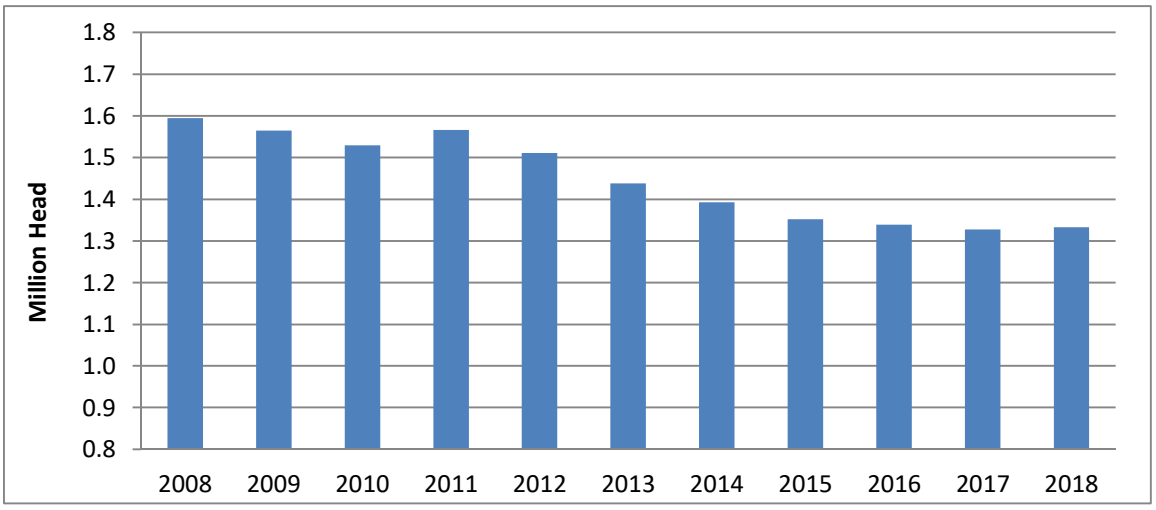
Alberta

According to Canfax, the Canadian Cattlemen's Association cattle market research unit, as of the start of 2018 Alberta had 150 feedlots of 1,000 head or larger. Those feedlots were owned by 136 enterprises. The 150 feedlots had a one-time feeding capacity of over 1.3 million head. In 2008 there were 194 lots that were 1,000 head or larger. Those 194 feedlots had a combined one-time capacity of just under 1.6 million head.

In 2008 of the 194 lots, 117 were 1-5,000 head in size representing 20% of total capacity. In 2008, 13 lots had capacity of 20,000 or more representing 38% of capacity. By 2018 there were 70 lots in the 1-5,000 head range representing 15% of capacity. There were 12 lots at 20,000 or more in size with 35% capacity.

Over the past decade, the total capacity of Alberta feedlots has been slowly declining, notwithstanding the modest uptick in 2018.

Figure 15: Total Alberta Feedlot Capacity (Lots over 1,000 Head)

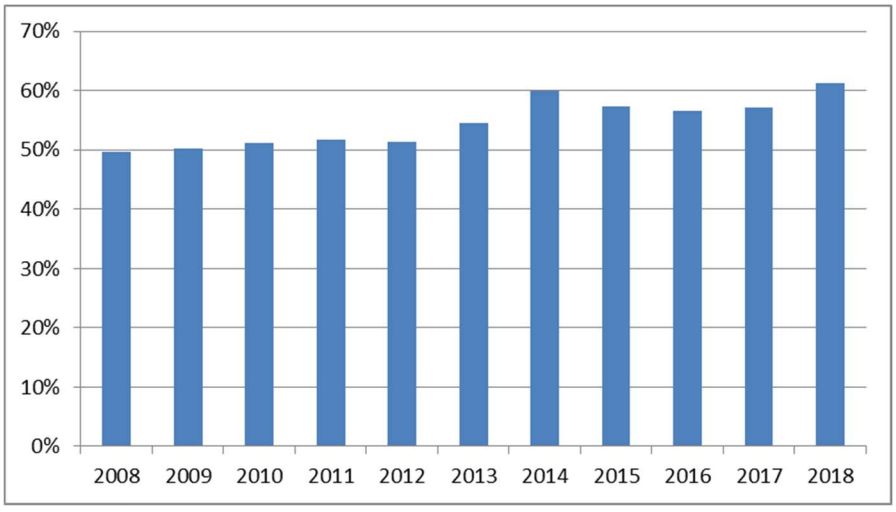


Source: Canfax

Canfax tabulates Cattle on Feed inventories, marketings and placements for Alberta, as well as feedlots in Saskatchewan. Data are not separated for the two provinces. In 2018 there were 10 feedlots in Saskatchewan where data was collected. Of total capacity, Alberta represents 95% and Saskatchewan 5%. As such for practical purposes the inventory data reflects activity in Alberta.

While capacity has been increasing, the average number of cattle on feed in Alberta has been fairly steady, running at 872,000 in 2018 and 868,000 in 2008. That means that capacity utilization in the feedlots has been steadily increasing.

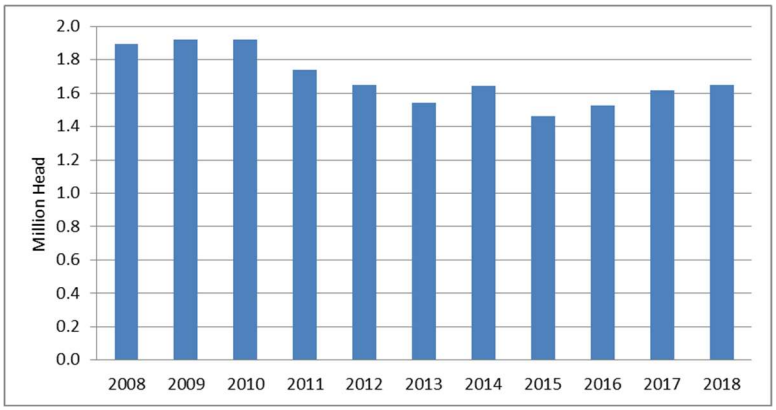
Figure 16: Alberta Feedlot Capacity Utilization Rate



Source: Canfax

Marketings in Alberta and Saskatchewan during 2018 will amount to 1.65 million head in 2018. That is up about 2% compared to the 1.6 million in 2017. Over the past ten years, marketings declined from 2008-2015 before slowly increasing into 2018.

Figure 17: Alberta and Saskatchewan Cattle Marketings, 2008-2018



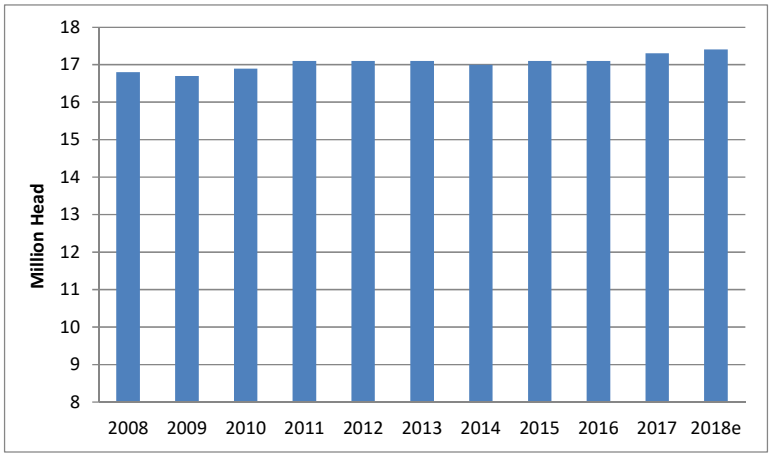
Source: Canfax

United States

There is no state-specific data on feedlot capacity in the United States. Given the dominance of the three states of Texas, Nebraska and Kansas, as cattle feeding states, it is reasonable to assume that the national data is a reflection of those states. The latest U.S. feedlot capacity data is for 2017. The data for the 2015-2017 period shows that there has been an average of 2,200 feedlots in the United States with a capacity of 1,000 or more head.

Total feedlot capacity in the United States has been trending steady to higher over the 2008 to 2018 period (2018 estimate).

Figure 18: US Feedlot Capacity (Lots over 1,000 head)



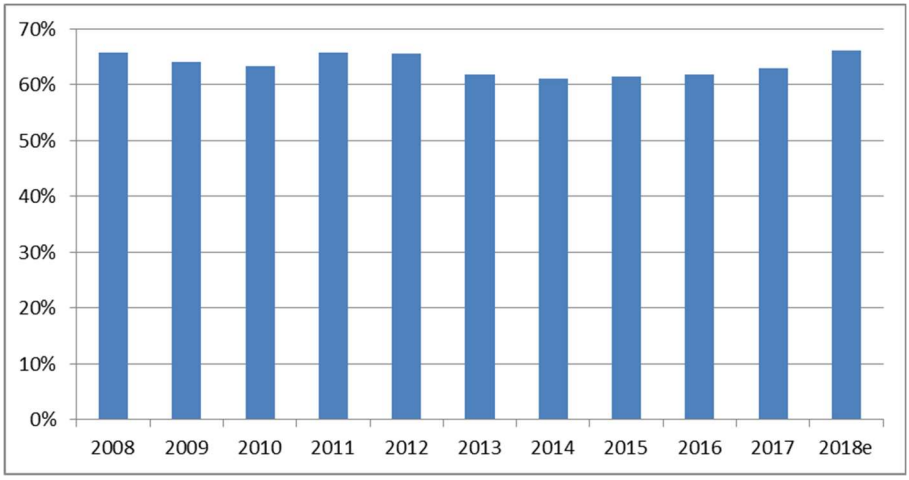
Source: USDA National Agricultural Statistics Service

The breakdown in lot size by the USDA is not exactly the same as utilized by Canfax, but as of 2017 lots over 20,000 head likely represented about 45% of total capacity.

That compares to about 48-50% of total capacity for the over 20,000 head sizes in 2008.

As the U.S. capacity has been gradually increasing, so too has the average number of cattle on feed. This has led to a generally steady rate of capacity utilization in the United States over the past ten years.

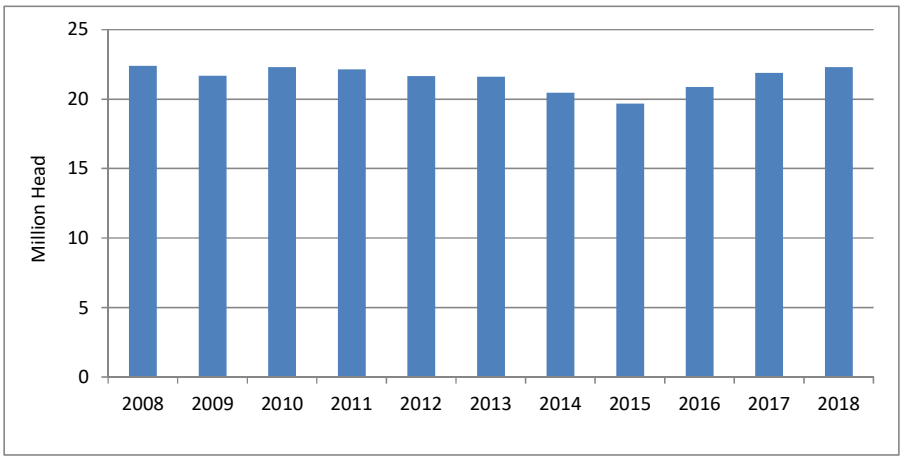
Figure 19: U.S. Feedlot Capacity Utilization Rate



Source: USDA National Agricultural Statistics Service

The marketings from U.S. feedlots have amounted to about 22.3 million head in 2018. That compares to about 22.4 million in 2008. There was a slow steady decline in marketings from 2008-2015 and an increase in marketings from 2015 through 2018.

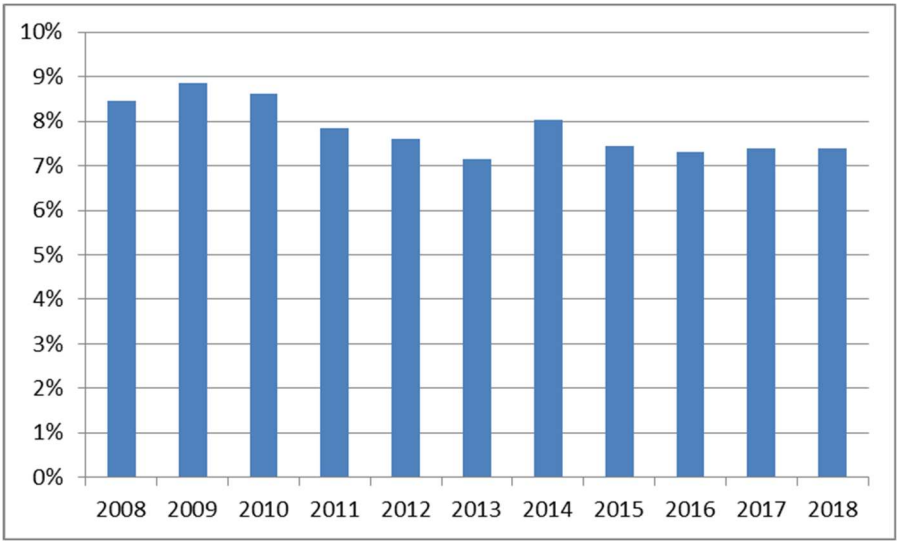
Figure 20: U.S. Cattle Marketings (Lots over 1,000 Head Capacity)



Source: USDA National Agricultural Statistics Service

Over the 2008 to 2018 period, Alberta marketings as a share of total U.S. marketings have declined from about 8.5% to 7.4%

Figure 21: Alberta Marketings Share of Total U.S. Marketings



Source: Canfax and USDA NASS

Beef Production

This section of the report examines the comparative beef-production capacity by packing plants in Alberta as compared to those in the United States.

Alberta

There are four federally inspected beef packers operating in Alberta: Cargill Proteins (or Cargill Meat Solutions), High River; JBS Canada, Brooks; Harmony Beef, Balzac and Canadian Premium Meats, Lacombe, Alberta.

Total beef packing capacity in Alberta amounts to about 9,800 per day. Harmony Beef which opened in early 2017 has a capacity of about 800 per day, although as of early 2019, it is not running at that level. The Lacombe plant is very small at about 100-150 per day. There is a federally inspected horse plant in Fort Macleod, Alberta, that will occasionally custom process cattle on a spot basis.

Table 2: Alberta Federally Inspected Beef Packers

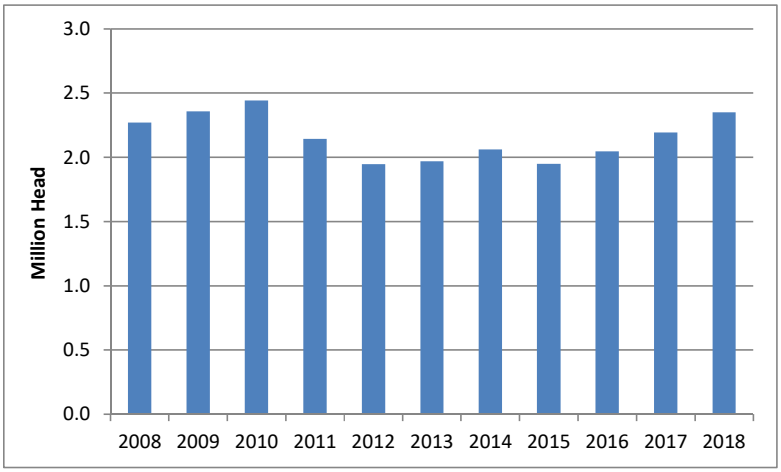
Company	Location	Capacity/day
Cargill	High River	4800-5000
JBS	Brooks	4000-4200
Harmony	Balzac	550-800
Canadian Premium	Lacombe	135

In 2008, the Balzac plant was operating under the name of Rancher's Beef. That plant however was closed in August of 2008. The High River plant was operated at that time by Cargill, but the Brooks plant was owned and operated by XL Foods (Nilsson

Brothers). XL also operated a 1,000 head per day plant in Calgary. The Calgary plant was closed in May 2011. The rough capacity in Alberta in 2008, prior to the Rancher's closure was probably 10,000-11,000 head per day in four plants.

Slaughter in Alberta totaled about 2.4 million head last year in the federally inspected plants. That is up by about 7% compared to 2017. The 2018 slaughter is up by about 21% from the low of 1.95 million in 2012. That year was impacted by the *E.coli* outbreak at the Brooks plant which reduced kills sharply in the fourth quarter. For further reference, the slaughter in Alberta in 2008 was 2.3 million while the 2008-2018 high was 2.4 million in 2010.

Figure 22: Alberta Annual Slaughter 2008-2018

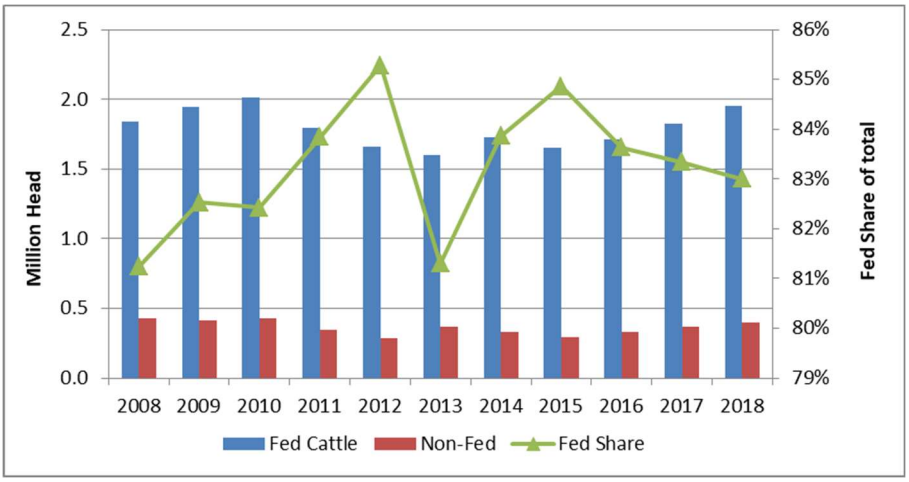


Source: AAFC/MISB/AID/Market Information Section

Alberta slaughters about 78% of total Canadian slaughter. That share has been relatively consistent for the last five years. The share in 2008 was just 70%.

During 2018, fed steer and heifer slaughter amounted to 83% of total slaughter while non-fed cows and bulls amounted to 17%. Fed steer and heifer slaughter has been running around 81-85% of total slaughter over the 2008 to 2018 period. All three plants in Alberta now slaughter both fed and non-fed cattle. That is not a common practice in the United States, and it was not common even in Alberta in the early to mid-2000's. Normally plants are dedicated to either fed or non-fed. Alberta plants have adopted to both as a matter of necessity in times of tight supplies and opportunity in times of abundant supplies.

Figure 23: Alberta Fed and Non-Fed Slaughter



Source: AAFC/MISB/AID/Market Information Section

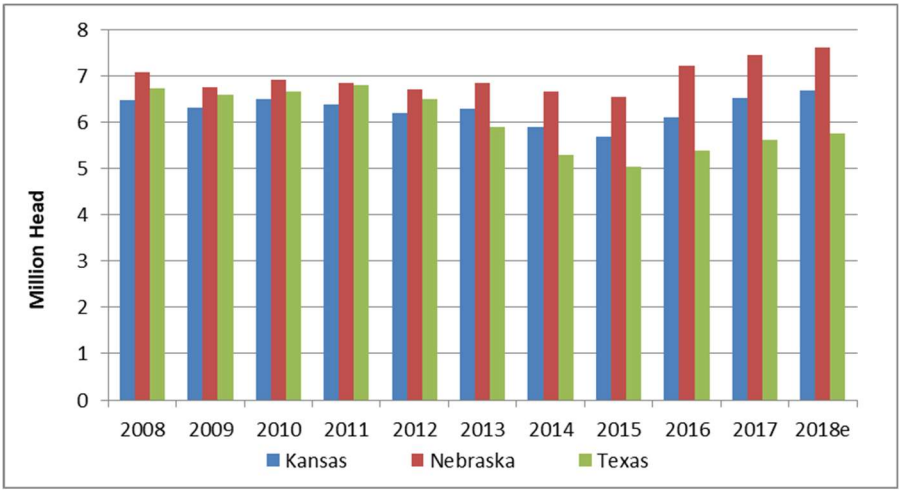
United States

Texas, Nebraska and Kansas are major fed cattle slaughter states. Total slaughter in those states amounts to about 20 million head per year which represents about 62% of total U.S. slaughter. It is also of interest how similar the slaughter totals are in the three states from 2008 to 2013, followed by more rapid growth in Nebraska from 2014 to 2018, as shown on the graph below. In recent years slaughter in Texas has been lagging as Nebraska has grown.

The reduction in slaughter in Texas was in large measure due to the closure of a Cargill plant in Plainview, Texas in early 2013. There was also a closure of a cow slaughter plant in Texas in 2014. These plants and several others closed due to the supply shortage in the 2013-2015 period noted above in the cow and feeding sections. It is interesting to note hat there were no plant closures in Nebraska and Kansas.

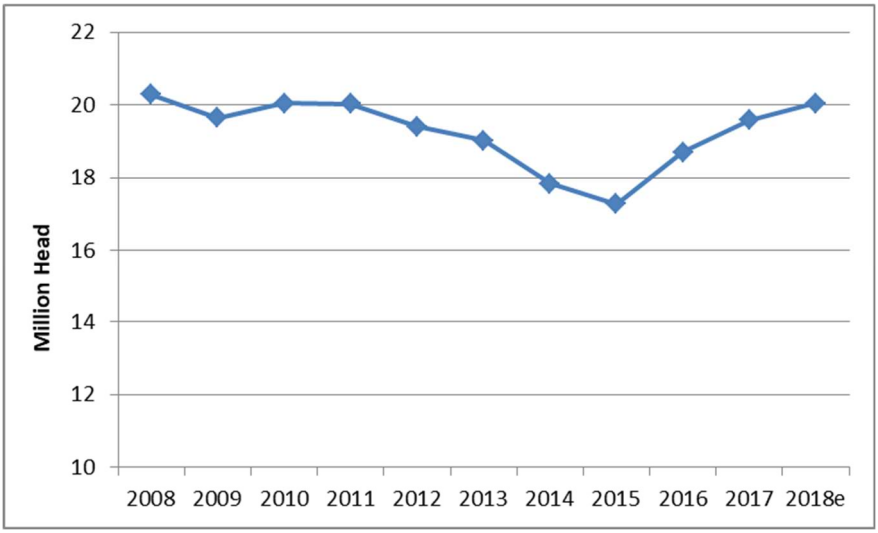
With regard to total slaughter in the three states, the kills were at 20.3 million in 2008 while the 2018 slaughter will likely amount to about 20.1 million.

Figure 24: Kansas, Nebraska, Texas Slaughter 2008-2018



Source: USDA NASS

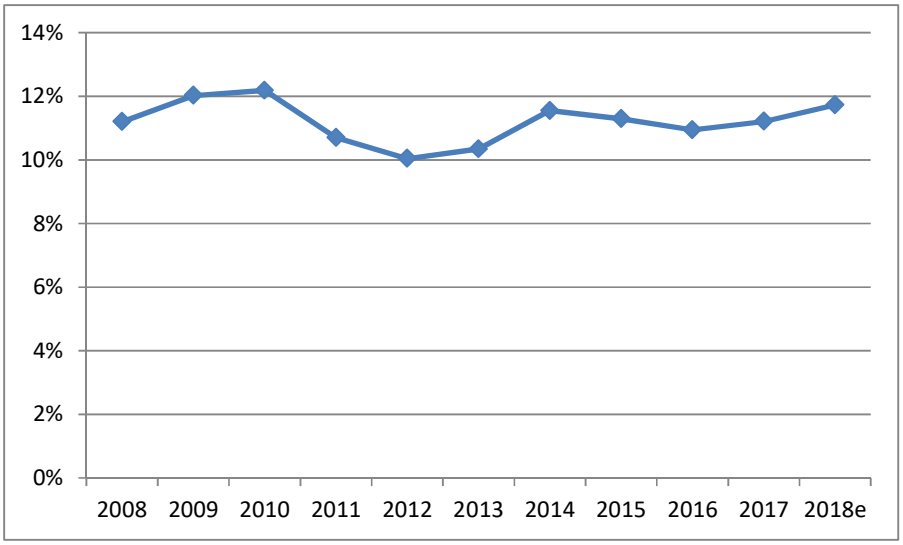
Figure 25: Total Slaughter Kansas, Nebraska & Texas 2008-2018



Source: USDA NASS

It is interesting to note that over the past eleven years from 2008 to 2018 the Alberta share of the total slaughter in the three states has been very steady. In fact, over that period there is no discernable statistical variation of note over that long period of time.

Figure 26: Alberta Share of Total Nebraska, Kansas and Texas Slaughter 2008-2018



Source: AAFC/MISB/AID/Market Information Section and NASS

Beef Trade

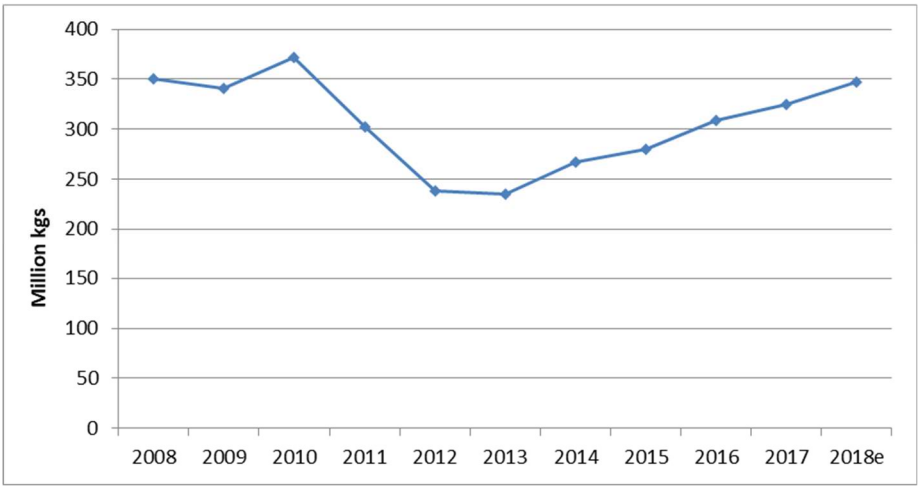
This section of the report looks at the performance of Canadian beef trade over the past ten years. Given Alberta's production dominance in Canadian production, this section of the report focuses on total Canadian beef exports and imports.

Exports

Canadian beef exports will total approximately 347 million kilograms or 347,000 metric tonne on a pay weight basis in 2018. That is up 7% compared to 2017. Total exports are almost unchanged from 2008 to 2018, although 2018 tonnage is up sharply from the 2008-2018 low in 2013 of just 236 million tonne. The total export value in 2018 will be a record of about $2.4 billion. That is an increase of about 14% over 2017.

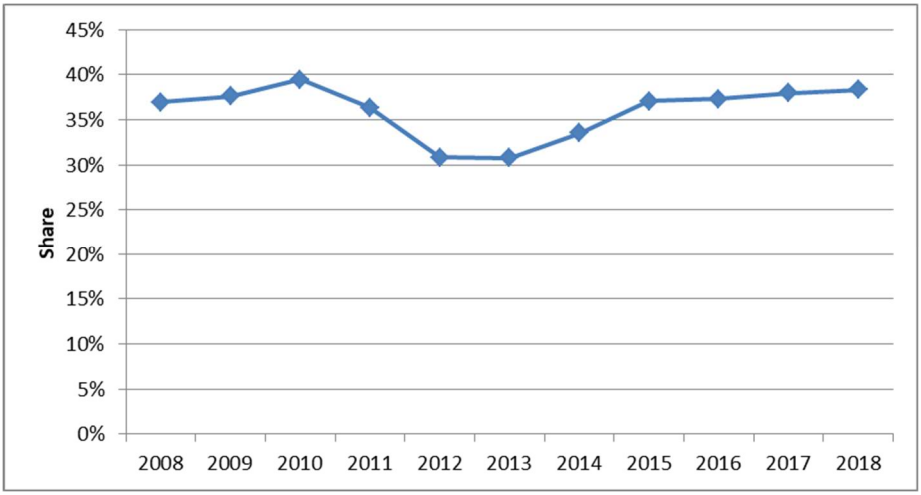
From 2015-2018 Canada exported about 38% of total production. The 2018 share was just over 38% of production. The export share of production has been reasonably consistent at that range except for the 2012-2013 period. Those two years may have been an anomaly, however, given the above noted *E.coli* outbreak.

Figure 27: Canadian Beef Exports 2008-2018



Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information Section

Figure 28: Export Share of Domestic Production



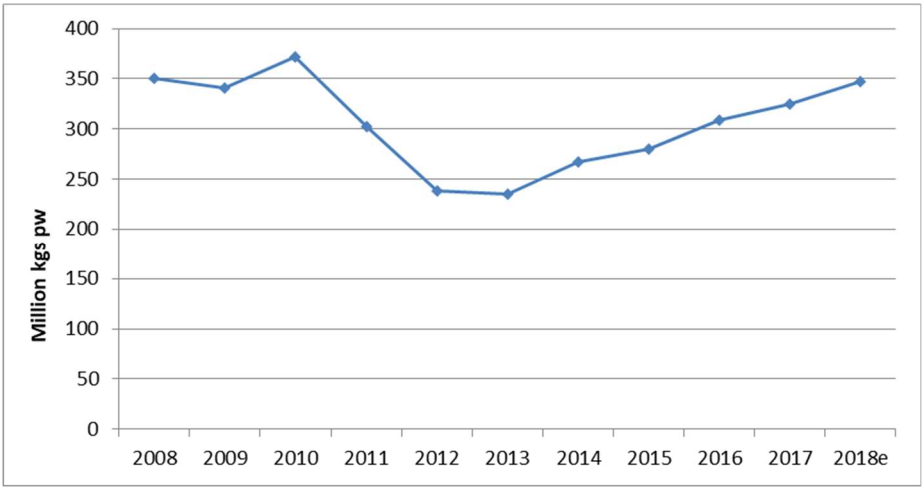
Source: Statistics Canada. Table 32-10-0053-01 Supply and disposition of food in Canada

Not surprisingly the United States is Canada's largest export customer. That is largely a reflection of the fact that Canada and the United States are part of an integrated North American market. The two countries are very similar as noted in sections above. The trade that occurs is due to daily, weekly and longer-term price signals dictated by local supply and demand conditions. Total tonnage to the United States in 2018 will amount to about 270 million kilograms. The second largest customer is Japan at about 10 times smaller.

Tonnage to the United States was up sharply in 2018 from 2017 but the total was less than the volumes moved in the 2008 to 2010 period. Of course, at those times much

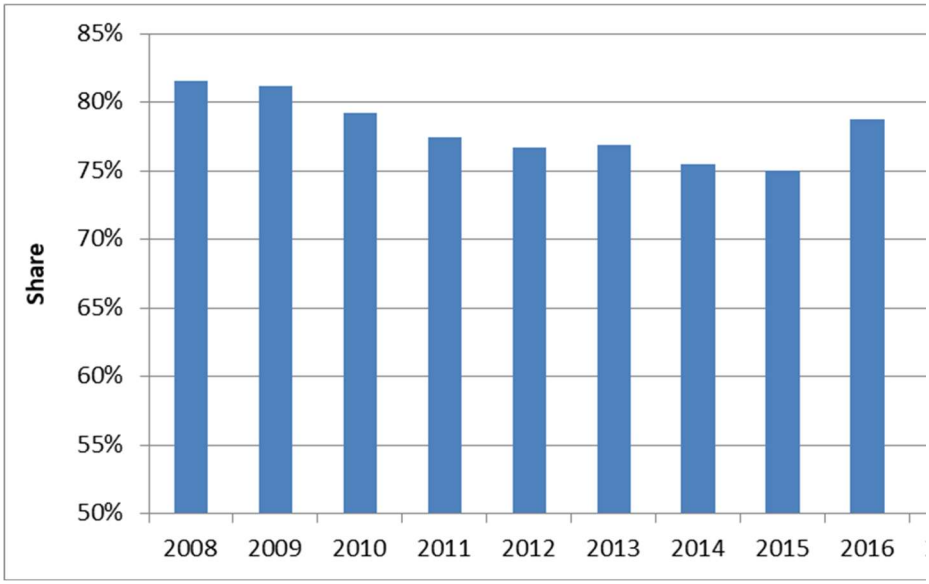
less was moving to Japan, Hong Kong and other east Asian markets. In 2018, 77% of Canadian beef export tonnage moved to the United States. That is down from the 82% in 2008 but very close to the 11 years of 2008 to 2018. In 2008 just 2% of Canadian beef exports went to Japan and Hong Kong compared to 13% in 2018.

Figure 29: Canadian Beef Exports to United States



Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information Section

Figure 30: U.S. Share of Canadian Beef Export Tonnage

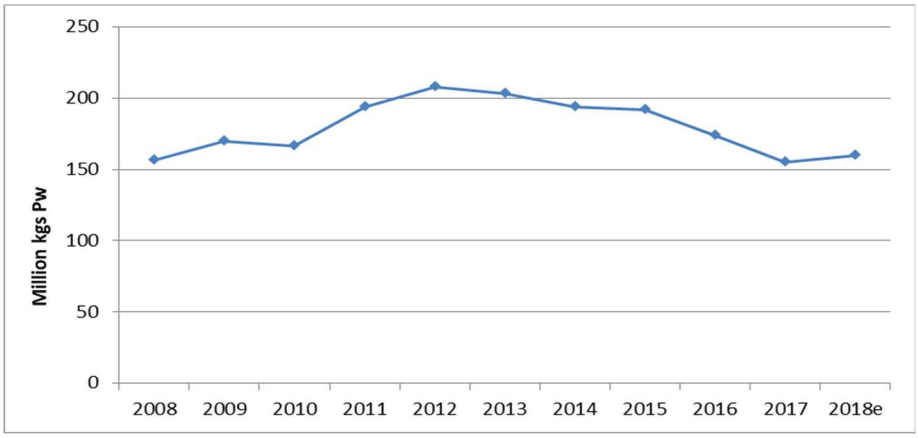


Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information Section

Imports

In 2018, Canada imported about 160 million kilograms on a pay weight basis. That was up about 3% from 2017. The import total was 2% more than the total imports in 2008. The import total over the 2008-2018 period saw little variation except for the tonnage increases in the 2012-2013 period. As noted above, that was the period of reduced production due to the *E. coli* outbreak.

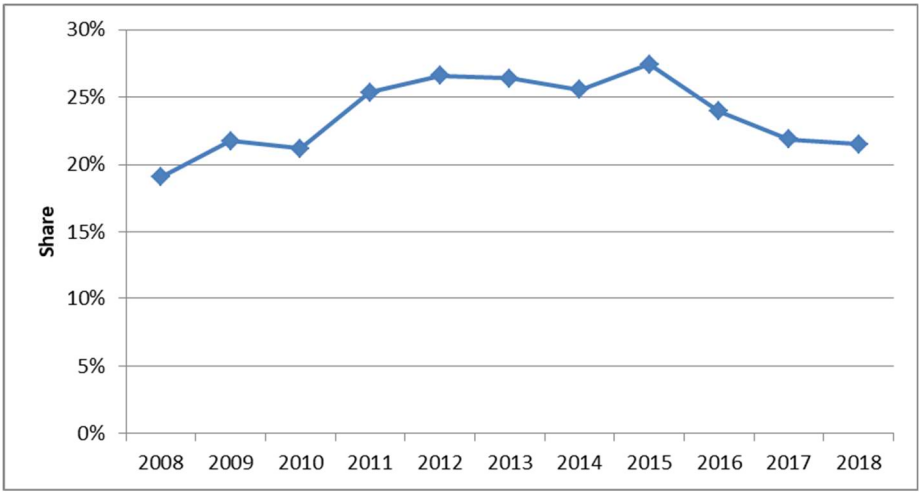
Figure 31: Canadian Beef Imports



Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information

About 21% of Canadian beef consumption is comprised of imports. That is up from just less than 20% in 2008 but down sharply from 2015. The 2012 to 2015 period was characterized by low production due to E. coli as well as the contracted herd. The overall picture of the import share of consumption is relative stability within the context of domestic production patterns.

Figure 32: Beef Import Share of Canadian Consumption



Source: Statistics Canada. Table 32-10-0053-01 Supply and disposition of food in Canada

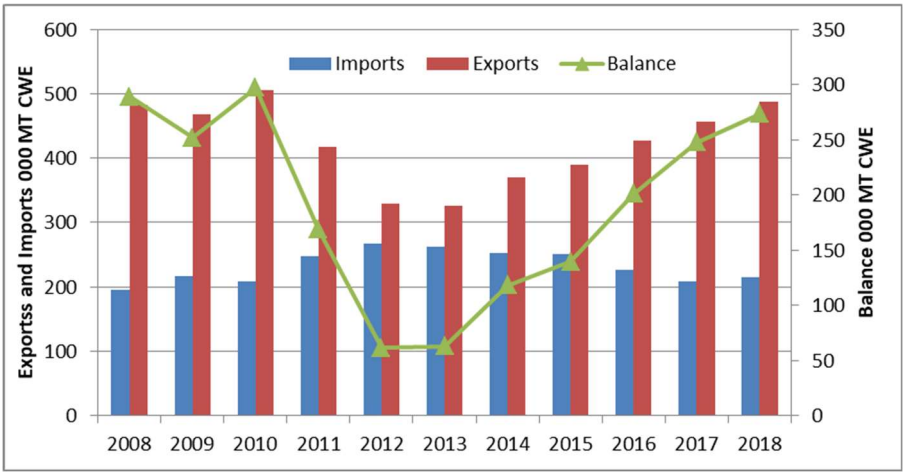
In 2018, about 60% of Canada's imports were sourced from the United States. That compared to just 57% in 2015 and 74% in 2008. The large volume of trade with the United States is due to the North American nature of the business and of the beef product in both countries.

The other major suppliers are Australia, New Zealand and Uruguay. Those countries supply largely frozen manufacturing beef for grinding or processing under a tariff rate quota system. The volumes from those countries are fixed under a long-term quota.

Trade Balance

Canada's beef exports have been steadily growing from the lows of 2012 and 2012 (as discussed above). Over the same time period Canada's imports have been in steady decline over that same time period. Canada's beef trade surplus has moved from about 50,000 tonne carcass weight equivalent (CWE) in 2012-2013 to about 270,000 tonne in 2018. The surplus in 2018 is very similar to the surplus levels of 2008-2010.

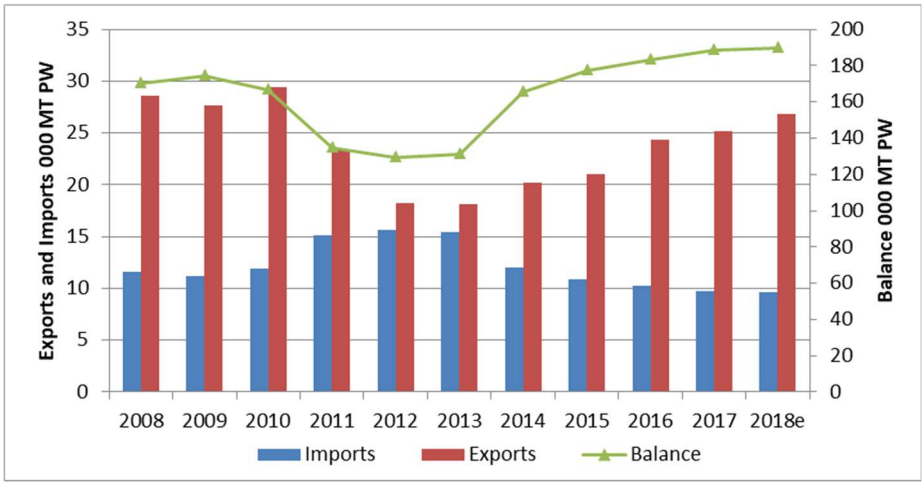
Figure 33: Canadian Beef Trade 2008-2018 Annual



Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information Section

With regard to the United States, Canada's trade surplus has been growing steadily since the lows of 2012-2013. As of 2018 the surplus was nearly 190 million kilograms, 11% more than in 2008.

Figure 34: Canada-U.S. Beef Trade Annual



Source: Statistics Canada, Prepared by AAFC/MISB/AID/Market Information Section

Beef Industry Trends Summary

- Alberta's cow inventory stood at 1.5 million head in 2018. That was 19.2% of the 8 million head in the three states. In 2008 the Alberta share was 23% for a 2008-2018 loss of 4%. Alberta's share increased during the Texas drought years but declined again post-drought.
- Total feedlot capacity has been decreasing in Alberta from 2008-2018 although the capacity has stabilized in the 2015-2018 period.
- Total feedlot capacity in the United States has been trending steady to higher over the 2008 to 2018 period.
- Over the 2008 to 2018 period, Alberta marketings as a share of total U.S. marketings have declined from about 8.5% to 7.4%. The share of marketings for Alberta has however, stabilized over the six years from 2013 to 2018.
- Over the past eleven years from 2008 to 2018 the Alberta share of the total slaughter in the three states has been very steady. In fact, over that period there is no discernable statistical variation of note over that long period of time.
- Total Canadian beef exports were about 350 million kilograms in 2018 which is roughly like the 2008 tally. Exports have been rising steadily since the lows of the 2012 *E. coli* impacted tonnage.
- From 2015-2018 Canada exported about 38% of total production. The 2018 share was just over 38% of production. The export share of production has been reasonably consistent at that range except for the 2012-2013 period. Those two years may have been an anomaly, however, given the *E. coli* outbreak.
- In 2018, Canada imported about 160 million kilograms on a pay weight basis. That was up about 3% from 2017. The import total was 2% more than the total imports in 2008. The import total over the 2008-2018 period saw little variation except for the tonnage increases in the 2012-2013 period.
- About 21% of Canadian beef consumption is comprised of imports. That is up from just less than 20% in 2008 but down sharply from 2015. The overall picture of

the import share of consumption is relative stability within the context of domestic production patterns.

- Canada's beef trade surplus has moved from about 50,000 tonne carcass weight equivalent (CWE) in 2012-2013 to about 270,000 tonne in 2018. The surplus in 2018 is very similar to the surplus levels of 2008-2010.
- Canada's trade surplus with regard to the United States has been growing steadily since the lows of 2012-13. As of 2018, the surplus was nearly 190 million kilograms, 11% more than in 2008.

Production Trends Conclusion

Competitiveness is defined above as the ability to profitably maintain or enhance market share. Based on the above note production trends, by most measures, the Alberta beef industry is maintaining or enhancing its market share while there has been some erosion of feedlot capacity since 2003, during the most recent five-year period that has stabilize. In most other areas Alberta's size and market share has grown or stabilized.

The area of greatest loss and concern is the relative size of the cow herd. Alberta's cow inventory stood at 1.5 million head in 2018. That was 19.2% of the 8 million head in the three states. In 2008 the Alberta share was 23% for a 2008-2018 loss of 4%. As noted above, the cow herd is the base of the industry. Erosion in that area impacts the entire chain.

Competitiveness Analysis

The primary purpose of this paper is to analyze the competitiveness of Alberta's beef industry as it pertains to those of the three States in question. Our approach was to first conduct a literature review of issues previously address in other studies of this nature. We then proceeded to examine the relative revenue performance, cost structures, and regulatory realities faced by the industry in their relative jurisdictions.

Literature Review

An extensive literature review of relevant reports, white papers, and other related text has been conducted with the objective of identifying key topics and general themes that are or have impacted competitiveness in the Canadian beef sector. Availability of material that directly evaluates competitiveness in the beef sector are rarely publicly available. However, with the help of the Alberta Cattle Feeders' Association and the Alberta Beef Producers, we have been able to review multiple studies that directly assess and compare competitiveness in the Canadian beef sector. Other publicly available materials were researched and are presented to augment findings from the competitiveness studies.

Significant amount of time and effort were allocated to reviewing the 2006 Informa Economic Competitiveness Report as this study takes an in-depth look into the supply chain dynamics that exist within the Canadian and US beef sectors and assesses competitiveness between the two countries. Not only can historical competitive differences provide a starting point for this assessment, but it also provides examples of approaches that can be utilized for future competitiveness assessments.

Informa Economics 2006

In 2006, Informa Economics conducted a competitiveness study on behalf of the Alberta Cattle Feeders' Association and the Alberta Beef Producers. The objective of the 2006 study was to conduct and in-depth assessment and evaluation of the system wide competitiveness of the Alberta cattle and beef industry compared to similar production regions in the US. At the time of writing in 2006, there were developing concerns over the economic sustainability and/or growth potential of the Alberta cattle industry.

The study was broken into four major tasks:

1. US and Canadian Supply Chain Descriptions and Evaluation of Points of Difference
2. US and Canadian Cow-Calf and Backgrounding Sectors Evaluation
3. US and Canadian Feedlot Sector Evaluation
4. US and Canadian Beef Processor Evaluation

The first task assesses the supply chains in both Canada and US and compares the similarities and difference in each respective supply chain. The subsequent three tasks focus on one specific link in the supply chain and assess many factors that impact the countries competitiveness.

We have reviewed the 2006 study and several issues were identified to have had an impact on competitiveness between Canada and the US. We have highlighted some of the most important competitiveness factors identified through the study.

Labour
Higher labour costs and lower availability of workers has had a negative impact on the competitiveness of the Canadian beef sector. Labour shortages, in both animal production and processing, have had significant impacts to the competitiveness of the industry as operations run below optimal rates. Higher wage rates and restrictions on using temporary foreign workers are key factors that have resulted in higher labour costs.

Exchange Rate
Changes in the exchange rate, depending on the direction, can have both positive and negative impacts on the Canadian cattle industry. Since cattle, both feeders and fed cattle, are based on pricing in US dollars, currency fluctuations introduce additional volatility in Canadian cattle prices and margins and creates higher risks, which typically translate into higher costs.

Government Regulation: Pharmaceuticals
The feedlot sector is at a distinct disadvantage to US feeders as the Canadian approval process of pharmaceuticals is typically delayed two to five years behind the approval process in the US. This translates into earlier adoption of management practices that can improve cattle performance or reduce incidences of illness or lameness.

Traceability Technology
The development of a national ID system with related traceability capabilities is more advanced in Canada than in the US. This is a key differentiation point that potentially gives Canada a comparative advantage in foreign markets.

Farm Policy
US farm policy can have indirect impacts on the quantity of commodities, including feed grains, produced in the US. Increased production of commodities can have depressing impacts on the cost of feed grains and thereby impact the cost of feed on US feedlots.

Rapidly Expanding US Ethanol Industry
Expansion in the ethanol industry has created heightened demand for corn and could thereby raise the price of corn in the short term. This increase will be tempered by the availability of Dried Distiller Grains (DDG's) and it is expected that in the long term, increases in the production and yield of corn will offset any price raises that result from ethanol expansion. This would thereby eliminate any advantage the Canadian cattle feeders may experience in terms of feed costs.

Plant Location
The distance between major feeding regions, processor, and major demand centers is an important consideration when assessing competitiveness between the US and Canada. Distances between feeding regions and processors are comparable between

the two countries, however, Alberta is at a distinct disadvantage with respect to proximity to major population centers in both the US and Canada.

Grading Differential
Canadian beef cannot be given a USDA grading designation. Product values are discounted in Canada due to a perception that USDA choice beef is a premium product to the AAA grade in Canada even though the two grading systems are virtually identical. Consequently, the price that packers can afford to pay for cattle in Alberta is less than what they can afford to pay in the US and creates a disadvantage for Canadian beef processors.

Overall, the 2006 Informa Economics report did not present an optimistic outlook for the Canadian cattle industry. There were only a select few comparative advantages that the Canadian cattle industry possessed over the US. These included regulatory factors, financing, and traceability technology. The US cattle industry appears to more competitively positioned than Canada when assessing the outlined competitive factors

The report finishes by recommending that the Alberta beef industry focus on implementing one or two specific strategies. The study suggests that the Alberta cattle sector is not the overall cost leader in North American and should focus on developing comparative advantages through differentiation or serving a particular market.

CAPI 2012

Canada's Beef Food System
The Canadian Agri-Food Policy Institute (CAPI) undertook a comprehensive study of Canada's beef sector by conducting interviews with several different beef supply chain stakeholders.

There were a few key observations that occurred during the stakeholder engagement process:

- There is a high level of business independence in the industry and was referred to as "the cowboy mentality". This contributes to minimal collaboration.
- Low levels of innovation and minimal productivity advances in part due to Canada's risk-averse culture.
- Canada has been losing its net trade balance with the US (by value). Average value of US imports exceeds the average value of our US-bound exports. This is indicative that Canada is importing higher value cuts and generally exporting lower value cuts.
- Consumer food preferences are evolving in a way that could lead to reduced beef consumption.
- Canadian beef exports heavily depend on the US market. This creates challenges and vulnerabilities. Changes to trade policy can have dramatic economic impacts.

As an outcome of the study, three specific suggestions were offered.

1. Canada has a significant advantage in cattle traceability and premises identification.
2. The development of an industry-led strategy is encouraged. This will allow government to align its own policies, initiatives, funding and regulation to enable this strategy.
3. There is the need for leadership, particularly at the national level, to initiate change.

The important take-away from this study is that the Canadian beef sector needs to design a strategy that will capitalize on comparative advantages that exist within the Canadian beef industry and subsequently focus on tasks or actions that will move the industry in that strategic direction.

Government of Alberta 2017

Standing Committee on Alberta's Economic Future: Growing and Diversifying Alberta's Agrifood and Agribusiness Sectors

The Standing Committee on Alberta's Economic Future undertook a study on how to grow and diversify Alberta's agri-food and agribusiness sector. As part of this study, several recommendations were made on behalf of the committee. We have summarized some of these recommendations below.

- The Government pursue strategies and initiatives to move Alberta products up the value chain and encourage business development, including evaluation and expanding current successful plans for specialty products, niche markets, and value-added production, processing and export.
- The Government work with industry and related stakeholders to develop a certification program for Alberta beef.
- The Government continue to grow existing markets and aggressively seek out new markets for the agri-food sector by leveraging Canada's international reputation in the promotion of made-in-Alberta products.
- That, where possible, regulations that impact the agri-food business sectors should enhance the competitiveness of agri-food and agribusiness industries.
- The Government work with the federal government and industry to ensure that companies in the agri-food and agribusiness sectors have access to labour, with a priority on creating opportunities for Albertans.

These recommendations directly address a number of the competitiveness concerns that are later discussed in this report. It appears that the government understands many of the key issues that the agri-food industry is facing, especially with respect to the cattle industry, however, it is important to evaluate the actions of the government and the alignment of these actions with the preceding recommendations.

NCFA 2016

Competitiveness of the Canadian Cattle Feeding Sector: Regulatory and Policy Issues, Costs and Opportunities

A series of focus groups were conducted on behalf of the National Cattle Feeders Association (NCFA) to identify and prioritize regulations and/or practices impeding the competitiveness of the feedlot sector and analyze the impact of the most significant impediments.

The NCFA Competitiveness report is similar to the 2006 Informa Economics report in that it identifies specific industry related issues that are impacting competitiveness in the Canadian cattle industry. The 2016 report is more current and will portray a more recent review and assessment of the issues facing today's beef industry.

Focus groups identified policies and practices that are negatively impacting competitiveness. Through the focus groups, a total of 14 issues were identified of which six were identified as being priority issues and were subject to further examination and economic analysis.

There are opportunities to address these issues that could dramatically improve potential gains for the feedlot sector and potential gains to the Canadian economy

Of the six priority issues identified, labour availability has the greatest potential to increase feedlot revenues as well as potential gains to the Canadian economy in form of the GDP, labour income, and jobs. Below is the ranking, from largest potential economic gain to lowest, of the six priority factors.

1. Labour Availability
2. Drug Harmonization
3. Traceability
4. Export Impediments
5. Transportation Regulations
6. Inspection Practices

By conducting this analysis and completing the consultation with the focus groups, the NCFA is armed with evidence-based data that will enhance the dialogue and increase the influence the NCFA can have on government officials and political decisions makers. These priority areas can be used to develop briefing notes, talking points, etc. and will ensure consistent and fact-based messaging.

Serecon 2012

The Regulatory Environment in the Canadian and US Beef Industry: An Environmental Scan and Comparative Analysis - 2012

The focus of this analysis by Serecon, Toma & Bouma, and Livestock Intelligence was to clearly identify regulations in the legislative framework that affect the Canadian beef supply chain in a negative way.

Several issues of significant importance were identified as creating a disadvantage, however, many of them are already being addressed through recognized mechanisms. The report concluded that the two most significant areas of comparative regulatory impact that were not currently being addressed are

traceability and SRM (Specified Risk Material) removal and disposal. The report also identified labour as a significant issue, although some stakeholders believe that the disadvantage is negated by elements of the corporate tax structure.

The report recommended that the beef industry:

- Support continued work on the traceability system and enhancing near term effectiveness for disease control purposes.
- Review SRM Removal and Disposal requirements with CFIA and Agriculture and Agri-Food Canada with a view to identifying changes which reduce regulator impact and maintain market confidence both internationally and domestically.
- Lobby governments of Canada and the US to extend and continue the Regulatory Cooperation Council.
- Lobby governments to allocate responsibility for ongoing review of regulatory impact in Canada and that this process be expanded to address competitive disadvantage resulting from administrative and cumulative impacts of regulation.

Australian Agriculture 2016

The Australian Government created a Productivity Commission which in 2016 conducted an inquiry into the regulation of Australian agriculture. The key task for the inquiry was to identify regulations that impose unnecessary burdens on farm businesses.

Some the key findings in that report included:

- The number and complexity of regulations affecting farm businesses means that the cumulative burden of regulation on farmers is substantial.
- Some regulations, such as those related to biosecurity and food safety, were highlighted as providing clear benefits to Australian farmers.
- The report categorized regulations and suggested that some should be removed altogether as they lacked sound policy justification, some issues would be better dealt with through another policy tool, and others need to be reformed, including the following which are of relevance to the beef industry:
  - Native vegetation and biodiversity conservation regulations need fundamental change so that risks and impacts are considered at a relevant landscape-wide scale.
  - Animal welfare regulations seek to achieve welfare outcomes that (among other things) meet community expectations. However, the current process for setting standards for farm animal welfare does not adequately value the benefits of animal welfare to the community.
  - The process for setting standards would be improved through the creation of a statutory agency responsible for developing national farm animal welfare standards using rigorous science and evidence of community values for farm animal welfare.

- International evidence could be put to greater use in assessing agricultural and veterinary chemicals, reducing the time and cost taken to grant registration.

The important take-away from this study is that Canada is not alone in this struggle in finding a balance between the burden of regulations and the opportunity that some regulations present to the industry, on matters especially like food safety and biosecurity.

Revenue Performance Competitiveness

This section of the report focuses on the revenues received throughout the chain in Alberta in comparison to the states in question in the United States. A primary focus of this effort is on pricing between Canada and the United States. While the comparison is to be between Nebraska, Kansas and Texas, the reality is that there is little or no price differential between the three states. The states are in close geographic proximity and any differential in price between them will be short-lived as prices will be arbitraged by cattle and beef movement.

Cow-Calf and Cattle Feeding

Price discovery in Canada typically takes the form of the following basic equation for the buyer-seller transaction and interplay:

$$\frac{\boldsymbol{US\ Price}}{\boldsymbol{US/Canada\ Exchange}} - \boldsymbol{Spread/Basis} = \boldsymbol{Canadian\ Price}$$

Basis is typically defined as the difference between the nearby futures market and the local cattle price. The spread is defined as the difference between cattle prices in two different regions. Often the terms are used interchangeably.

U.S. cattle prices are the base reference for determining the local or regional price at any point in time in Canada. That is the case for most commodities. Given that cattle and beef are traded relatively freely between Canada and the United States, the Canadian price of cattle and beef is very closely correlated to US prices. The US market sets the overall tone and direction for cattle and beef pricing in Canada given the similarity of markets and products.

The second component of the local price discovery process is to adjust the U.S. price to Canadian dollars. That provides a Canadian dollar value to the prevailing North American-based reference price.

From that point, local supply and demand conditions take hold as the final component of the pricing process.

The most important consideration about local supply and demand in the Alberta cattle and beef industry is that supply is greater than demand. There are more cattle and more beef produced in Alberta than are slaughtered or consumed in Alberta or Canada. Alberta and Canada are therefore on an "export basis" regarding pricing. Export basis means that the local price will be the U.S. price in Canadian dollars less the cost of transport to an alternative market.

There is a similar argument regarding beef. The total production of beef in Canada is greater than Canadian consumption. Supplies are greater than domestic demand. That will also place downward pressure on beef prices, relative to demand being greater than domestic supply.

Regarding cattle prices, the logic is that no buyer is going to pay more than the seller's competitive alternative. The competitive alternative is the U.S. price in Canadian dollars less the cost of transport. This differential between the US price in Canadian dollars and the actual local price is typically called a spread or basis.

There are other reasons why the cattle spread is typically lower in Canada than in the United States. One of those reasons is, as discussed elsewhere, Canadian packer revenues are less than U.S. revenues. As such, with less revenues in the supply chain, there is an obvious downward pressure on the cattle cost, relative to the United States. Another reason for the negative spread or basis is that, depending on the exchange rate, Canadian packer costs are greater than U.S. costs. Again, the details are discussed elsewhere in this report, but given higher labor and other costs, Canadian packers are thus less able to pay equivalent cattle values as their U.S. counterparts. Lower revenues and higher costs at the packer level translate into lower cattle prices in a competitive, margin-based industry.

In summary then, when the spread or basis is narrower or "stronger" than the cost of transport, it indicates that local supplies are short. Buyers need to pay more to ensure that supplies do not leave the region. When the spread is wider or "weaker" than the cost of transport, it indicates that local supplies are greater than normal. In that case buyers might pay less than the cost of transport as they are not concerned about losing animals from the region. Local supply and demand conditions cause the spread to fluctuate around the cost of transport, depending on those conditions.

Any event or factor that causes the local supply and demand to change will have an impact on the spread or basis. A loss of packing capacity will result in a wider basis while an increase in capacity will narrow the basis. Strong demand for beef will cause packers to increase local prices in order to keep cattle from moving south which results in a narrower basis. An increase in local supply due to problems in another region will force the local basis wider.

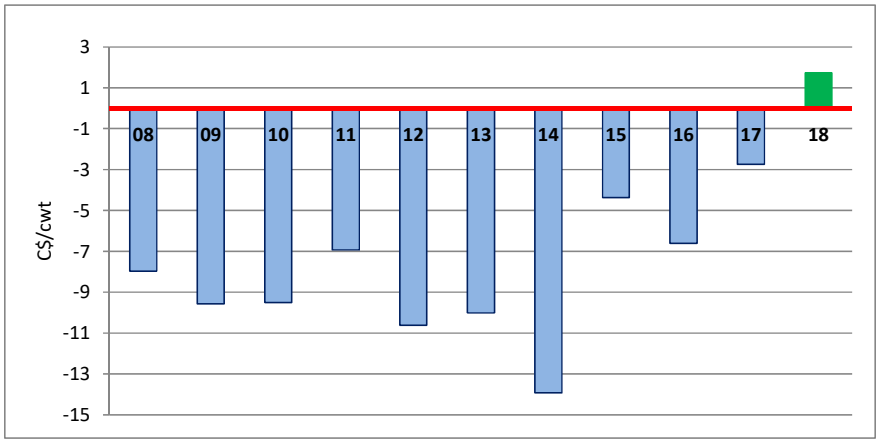
Fed Cattle Prices

Given that general discussion above, as a rule over the past twenty or more years, Alberta fed cattle prices have tended to be lower than prices in the United States by about C$6-8/cwt on average over the course of the year. This is roughly and not surprisingly very close to the cost of transport for moving cattle from the feeding regions of Alberta into alternative packing plants in the United States.

The most important reason is that it costs about $5/cwt+- to move cattle south from southern Alberta into the United States to an alternative market. Given that cattle supplies are greater than demand from the Alberta plants, logically buyers will only pay the U.S. price less the cost of moving cattle to the United States. As such, the price spread would logically be at least C$5 under the U.S. In fact, for the past ten years from 2008 to 2017, the Canfax Alberta-Nebraska spread was C$-8.28/cwt. For reference, the Alberta-Texas Panhandle spread was C$-8.22 over that period, which demonstrates the price similarity in the states.

That scenario above of lower fed and feeder cattle prices in Canada than the United States has been the case for decades. That has been the case for the reasons of supply and demand discussed above. The scenario of a negative cattle spread has, however, been reversed in Alberta during 2017 and 2018. Over the 2017-2018 period it appears that cattle demand is greater than supply in Alberta and, hence, prices have increased versus the U.S. In 2018 the price spread went into positive territory by nearly C$2/cwt.

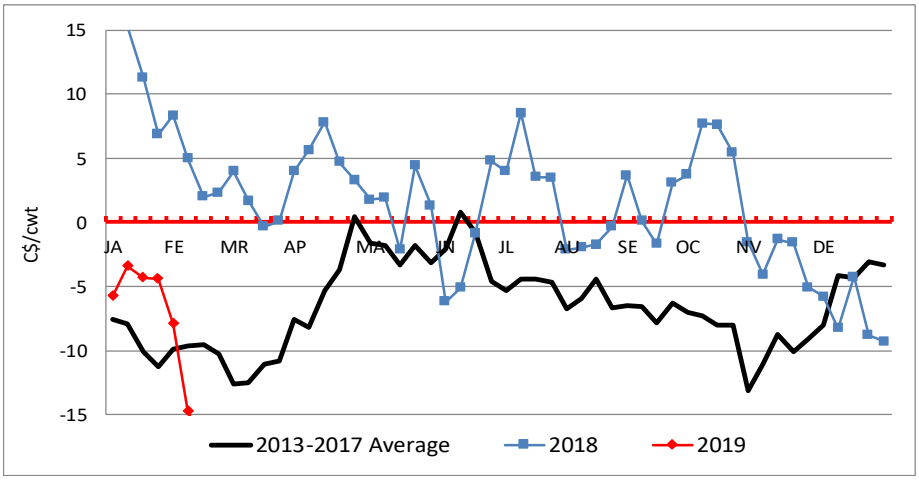
Figure 35: Alberta-Texas Fed Steer Price Spread 2008-2018



Source: Canfax and Texas Cattle Feeders Association (TCFA)

The critical question for the industry is whether the positive trending basis and indeed the positive basis of 2018 is in fact the new normal for Alberta. This is critical because price has equal importance as cost in determining industry profits, margins and competitiveness. It is also a critical question because the industry closed 2018 and went through the first quarter of 2019 with a basis or spread which had turned decidedly negative (see graph below). The future direction of the basis or spread is a key determinant of industry direction through the cattle and beef chain.

Figure 36: Albert-Texas Panhandle Price Spread Weekly

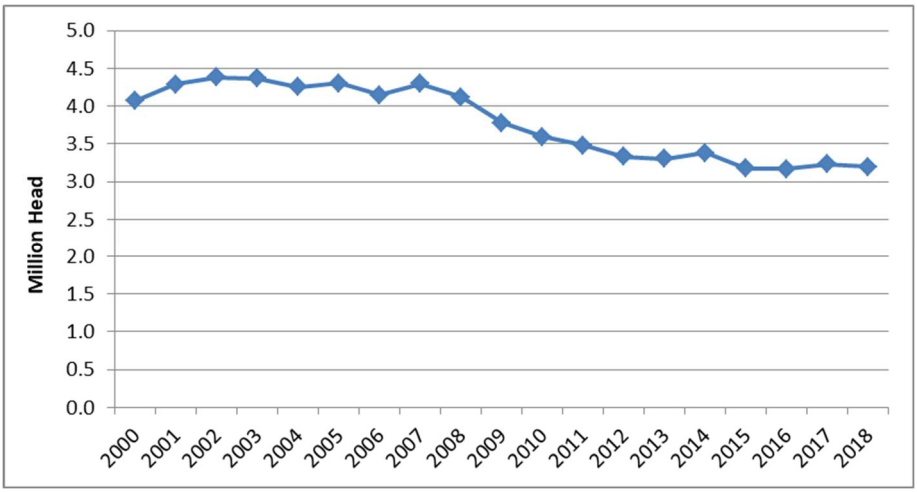


Source: Canfax and Texas Cattle Feeders Association (TCFA)

While it is relatively easy to understand the supply and demand reasons for a negative basis, the reasons for the 2018 positive basis are less clear. They must be explored however to determine whether the positive spread is sustainable and thus the impact on competitiveness.

As a starting point consider the overall supply situation. The decline in the calf crop in the west has stabilized in the last four of years, but it is still 3% less than five years ago in 2013. Furthermore, given culling rates of cows and females, that number is going to go down. Supply is and has been tightening.

Figure 37: Western Canadian Calf Crop 2000-2018



Source: Statistics Canada. Table 32-10-0139-01

On the demand side, the new Harmony Beef capacity helps to increase the demand for cattle. The plant has a daily capacity of 800. As such an added 4,000 head per week in a province that kills about 40,000 fed cattle a week makes a big difference. As of the end of 2018, however, the plant was running probably less than 500 per day. Furthermore, of that tally, some days it is likely that about half are cows. As such, the Harmony-related weekly demand increase on fed cattle was more like 1,400-1,500.

Cargill has increased its capacity in the last few years. Until about 2009-2010, the High River plant was able to slaughter about 4,200 per day. At that time, it increased its capacity to about 4,500. During the past two to three years that plant has often been slaughtering about 4,800. The JBS plant at Brooks has also increased its daily kill to about 4,300 from 4,100. Therefore, there has probably an increase in capacity of about 4,000 per week from the three plants as of 2017/2018 compared to five years prior.

The conclusion is that the added demand is having an impact on the Alberta-U.S. price spread. That is particularly the case in a period of declining supply. With that acknowledged, the assertion for the purposes of this research is that it is not prudent to assume or plan on a positive basis in Alberta. The natural forces of supply and demand coupled with transport costs still argue for a negative basis or price spread. It is also acknowledged that the U.S. herd has been expanding while the Canadian herd has been steady or declining. The argument for this research therefore is that the industry should plan on a narrower basis than has been the case historically, but that the basis will remain negative.

Beef Packing Pricing

Fed cattle account for 85-95% of cattle processed (higher % in the summer months, lowest % in the winter months). Canada has an official grading system and will grade young cattle into A, AA, AAA, and prime. Most packers have also developed specific brands that follow strict attributes to meet customer requirements and generate additional revenue. (Sterling Silver, Northern Gold, Prairie Heritage, Symphony)

The Canadian retail business has made a conscious decision in the last several years to promote a Canadian sourced product line as well as concentrating on the AAA grade. This has helped the Canadian packing industry generate an acceptable AAA return where years ago many AAA middle cuts were downgraded into the AA pricing structure.

This analysis breaks the beef carcass into its primal cuts and describes each of them individually.

Chuck

The main components are the chuck roll, clod, chuck tender, flat iron and chuck trim. The domestic market will absorb the bulk of the chuck rolls and clods however significant quantities of chuck rolls can be sold into the US and Japanese market. The Japanese market is typically at a premium to the domestic market ($0.05- $0.10 / pound) however the volumes are limited. The price received would be equal to or slightly lower than a typical US plant going into this market.

As the Canadian return is typically the best for the clod, the bulk of all clods stay in the Canadian market at a premium of $0.02 - $0.05 / pound.

When the choice / select spread in the US significantly widens (above $10/cwt) the US market pays a slight premium for choice chuck cuts over there select equivalent. During this time the chuck return in the Canadian plants fall slightly below the return generated by the US facilities.

Overall the return generated by the chuck roll / clod complex at a Canadian plant would be competitive to that generated at a US plant

Primal Rib

The main components are the prime rib (RTS, Bls Lipon, Ribeye) and the 123a short rib. Grade plays a key role here as there can be a significant price difference between the Prime, AAA and AA price. During the bulk of the year the Canadian packers can match the return generated by the US plants, however when the choice price goes very high (converted price in Canada goes above $10/lb.) the Canadian retailer shies away from using this primal forcing the packer to discount relative to the equivalent US return.

The Canadian packer has never fully developed the export market for the prime rib sub primal in either the US or Asian market.

The 123a short rib price is mainly dictated by the Asian export market. The size of Canadian cattle produces an ideal product for the Asian market and as such Canadian packer returns are equal to and sometimes higher than the average US return.

Overall the Primal rib return will match the US return however for short periods of time (Christmas for example) the return in Canada will be below that of the US. ($0.25 + / lb.).

Primal Loin

The main components are the striploin, shortloin, top butt, tenderloin and butt tenderloin. Here again grade will play a major role in the pricing of these components. Significant differences are apparent between the AA, AAA and prime grades. The Canadian packer has done a good job of marketing the shortloin, striploin, and top butt as they typically receive a US equivalent price and will be premium to the US during the summer months. ($0.05 - $0.25 /lb.) for the AA / AAA products.

The tenderloin is the one cut that the Canadian packer can occasionally struggle with. The Canadian market's utilization of tenderloins cannot match the total production and as such the packers are forced to move product into the export market, mainly the US. ($0.20 - $0.30/lb. discount)

Overall the primal loin return will be competitive with the US plants and with better utilization of the tenderloin the Canadian return could be better than the US.

Primal Rounds

The main components are the inside, flat, eye of round and knuckle. Most of these components will be marketed in Canada at a premium to the average US plant return. The Canadian market consistently utilizes a high % of the Canadian production. As with the chuck primal, when the US choice / select spread widens the US may receive a slight premium on the choice round cuts for this time frame ($0.02 - $0.05/lb).

Overall the primal round return in Canada will be equivalent or higher than the return generated by our US competitors.

Trim and Grind complex.

For the most part, the bulk of the fresh and frozen trim produced by the Canadian plants is sold into the US. Any trim sold in Canada is equivalent to or higher than the return generated by a US plant. The price of Canadian trim sold into the US is typically equivalent to that sold by a US plant however Canadian plants incur a higher transportation cost so the overall return will be $0.03-$0.04/lb below that of a US facility.

Ground beef is another area of concern for the Canadian packer when it comes to competitive pricing. The Canadian industry has made a conscious decision not to export this product to the US due to USDA testing protocols and the serious risk to the Canadian packer associated with this testing. Due to USDA regulations it is estimated that all loads of ground beef would potentially be subject to pathogen testing to meet their requirements and with the scope of testing and the fact that it could take up to 7 days to get the results it makes it prohibitive for the Canadian packer to access this market. Prior to the regulators declaring *E. coli* 0157 as an adulterant and requiring enhanced testing protocols, ground beef was moving into the US market. It is interesting to note that occasionally US ground beef will enter

Canada and is not subject to the same requirement that the Canadian industry is subjected to going south.

The US industry has excelled at marketing branded ground beef products as well as source grinds (chuck, round, sirloin). This has generated significant price premiums over regular ground beef programs. The volume of these types of programs generated by the Canadian industry is almost nonexistent.

Overall the US consistently receives a healthy premium for the trim and grind complex when compared to the Canadian industry ($0.03-$0.04/lb on trim and upwards of $0.10/lb on ground beef).

Thin Meats

Thin meats are flapmeat, inside skirtmeat, loin tails, chuck short ribs, blademeat, outside skirts, teres major, etc. Many of these items are sold into the export markets mainly the US, Mexico, and Asia with a small volume being sold in Canada. The product sold in Canada and Asia receives a return equal to the US return. The balance of these items that consistently move into the US typically receive an equivalent or slightly discounted return. Overall the return of the thin meat complex will be at a slight discount to the return achieved by a US plant. (up to $0.05/lb.)

Other Price and Revenue Factors

In Canada the seasonal variation in grade and carcass weights can affect the price of the various Canadian graded products. During the summer months the AAA / prime grade is usually at its lowest tonnage with demand at its highest. Premiums during this time frame consistently occur. Conversely the grade volume is at its highest during the winter months with demand being the weakest and as such discounts routinely occur.

The proliferation of packer branded programs has helped the Canadian packer achieve additional revenue over and above a regular graded product. The US has also done a good job in developing these programs so at best the Canadian industry would be competitive with their US counterpart.

The growth of antibiotic and hormone free programs as well as organic programs has provided some companies with significant additional revenue. These programs are usually more costly to run however the margin generated covers these costs.

The emergence of the European market is another area of opportunity. Products currently going into this market are at very acceptable prices and there again will cover the additional cost associated with the protocols needed by the industry to go to this market. As Canada has a free trade agreement with Europe while the US is still negotiating there is window of opportunity for the Canadian industry to take advantage of.

The recently completed Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) can also provide the Canadian industry with a boost over our US counterparts in Asia-Pacific markets, especially in the lucrative Japanese market. As this just came into effect at the end of December it is still too early to determine how much benefit the Canadian industry can recuperate.

Export Market Revenues

It is widely acknowledged that the US is the strongest supplier of high-quality beef in the world and tends to get a premium price over its 2 main rivals: Canada and Australia. Attaining increased value in export markets continues to be an area of opportunity for the Canadian industry. The US industry has been exporting significant volume to the Asian market for much longer than Canada and in many cases has developed strong lasting relationships. As their industry is much larger than Canada's, many larger customers feel more comfortable with the US industry as they are better able to supply the volume requirements, especially thin meats. The recently signed CPTPP may provide a great boost to Canadian efforts in Asia, especially Japan. Canadian packer marketers are seeing intense interest in increasing volume to this market. With that noted, it is very unclear what long-term impact the agreement will have on exports to that region of the world.

That uncertainty is because as of now, even with this advantage, Canada still lags behind the US in attaining an equivalent price on most products. The Canadian industry is working hard to find the right customers in these markets and must continue to establish the same kind of long-term relationships that the US has developed. Canadian packer marketers must find the right size of customer that feels confident that The Canadian product can consistently supply their needs.

In Korea the US established their free trade agreement with them several years earlier than Canada thereby enjoying a 7-8% tariff advantage. This will continue for several years until both agreements hit the final year of tariff reduction.

China is another area where until recently Canada did enjoy an advantage. The market is fully open to UTM frozen product with the opportunity for chilled product on the horizon. The US does not enjoy equivalent access to this market and must resort to using Hong Kong and Vietnam as points of entry. This is usually more costly resulting in less revenue. It is unclear how the current political discord between China and Canada will affect this trade as it has been noted that several shipments have been delayed in obtaining access to the country. It is also known that several customers have hesitated in establishing new orders until more clarity on this situation becomes evident.

Europe is another area of opportunity to grow the Canadian industry and there are currently 2 Alberta plants shipping product there. Short term this is an advantage for Canada however the US is actively pursuing this market. If there is a US / Europe free trade agreement, any current advantage will be negated. One area of concern continues to be the EU regulatory environment which makes it more difficult for the larger players to efficiently produce product for this market.

Over the past several years Mexico has been a substantial export market for Canada (mainly end cuts, thin meats and offal) however the emergence of the Chinese market has shifted volume from this market. In the last year the volume travelling to Mexico has decreased. Mexico is typically a price driven market and with the disadvantage we incur on the freight side the bulk of the trade is now concentrated on the thin meat and offal items that traditionally are sold into this market. Less muscle cuts are finding their way to this market as other markets are providing a better return.

Another area of concern for the Canadian industry is the lack of access to many markets for over thirty-month-old cattle (OTM) meat. Prior to the BSE event, Canadian OTM meat had full access to all the export markets while now, access is limited to a handful of countries.

Cows and Bulls

This analysis breakdowns the cow complex into 3 main categories: white cows, utility cows, and canner cows. These categories produce differing items for sale into the market and they can be compared the return to their US counterparts.

White cows are generally grain finished and produce primal cuts similar to the young fed cattle. Canadian plants attempt to save all of the sub primals, but they fall short mainly in the chuck and thin meat complex. The US does a far better job in saving and selling these items into their market. Where they will sell the chucks as rolls and clods a good portion of Canadian white cow chucks will go into the trim and grind complex at lower money. Canadian plants do a better job on the round complex however they are occasionally downgraded into the trim and grind arena.

As mentioned earlier in this report the Canadian industry's return on the trim and grind complex is lower than the US so plants are taking a double hit when we downgrade these sub primal cuts into trim and grind. It is estimated that the return on this category of cows is approx. $20/head lower than the US.

Utility cows are generally the stronger beef cows that are culled from the ranches across western Canada. As with the white cows the US have an advantage over our industry mainly in saving a higher proportion of the thin meat items. It is estimated the return on this category is approx. $15/head lower than the US.

The “canner cows” category is made up of the spent dairy culls as well as the very weak beef cows. Typically, only the tenderloin, denuded strip loin and rib eye are saved. No thin meats items are usually recovered, and this would be very similar to the US. Most of the recovered meat is saved as extra lean and lean trim. There again the US return for this product is greater than the Canadian return.

As most of the Alberta beef plants are designed for processing fed cattle, they tend to be somewhat reluctant to process bulls, especially the larger ones (over 1800 pounds). These animals tend to go south to those plants that specialize in processing the older animals. The return generated by processing bulls is usually good for the plant however, just like the cow complex, will fall short of the US turn.

The value difference from the canners and bulls can be as high as $25/head vs. the US as the bulk of the meat generated from these two categories are trim.
The proximity of the cow herd in Alberta and Saskatchewan to the main Alberta plants is a competitive advantage to them, allowing them to temper the selling margin difference to their US competitors.

Also, the bulk of the beef cows tend to come to the market in the fall or winter timeframe when the fed cattle margin tends to weaken, thereby making it more economical to process more cows.

Variety meats

The bulk of the variety meats are sold into the export markets including Asia, US, Mexico, and to a lesser extent Africa and South America. Other than the Asian market Canadian plants are freight disadvantaged vs. US competitors to these other markets by up to $05/lb.

There is a small market in Canada for fresh red offal (heart, kidney, oxtail, liver). The Alberta plants will tend to focus more on Western Canada as the beef plants in Ontario are better positioned to cover the larger markets of Quebec and the Greater Toronto Area. The return on this business is usually very good, but the production and sale of these items pales in comparison to the volume that is sold frozen into the export market. The US typically has a larger % of fresh offal production as they access the larger US and Mexican market.

Prior to BSE, Canada was exporting an increasing amount of fresh offal into the Japanese market however this business has mainly revered back to frozen. The fresh market tends to be at least $0.25/lb higher than the frozen market and one that needs to grow again.

When comparing the values achieved form the various markets the Canadian plants will sell at best equivalent to their US counterparts. Canadian plants are typically anywhere up to $0.05/lb. behind depending on the item.

Case ready and Value-added Processing

All the major packers in the US have a case ready division as part of their operating platform as it relates to the primary packing business. In Canada, Cargill is a major player in the case ready arena and JBS recently purchased the assets of the Mountain Creek Farms value added business from the Nilsson Bros. These businesses are typically run as a cost-plus venture. If the volume and yields through the facility hit the established targets, profitability is assured.

These facilities can be customer specific (Vantage - Metro) or can service a variety of customers. The latter is preferred by the bigger packers as they run large facilities that require several customers to meet their volume output objectives. Beef and pork are the main species being processed however some will have a poultry component. The main products being produced are sub primal retail cuts as well as grinds and sausage.

The case ready sector is growing rapidly on both sides of the border as well as Mexico where Cargill is building multiple facilities to service the major retail trade there.

A major benefit to the primary business is they now have direct access to the North American retailer and can better understand their needs; quickly adjusting the primary businesses to meet those needs. It also gives them direct access to forward booking the retailers requirements and help influence them to better manage the businesses product utilization needs. Yield information can be passed back to the primary packer so adjustments to specifications and streamlining processes can be more effective.

The case ready business will continue to grow from its current status on both sides of the border. As such there is no advantage or disadvantage to the Alberta packers as compared to the US. It is anticipated even the smaller packers will align themselves with some type of value adding business in the future so they can also offer a wider variety of products to the Canadian
retail and food service industry.

Rendered By-products

Rendered by-products include Meat and Bone Meal (MBM), blood meal, tallow, gel bone. For the most part the rendered by product return is competitive with the return received out of our US competitors. One area we are still challenged with is the market access issue with the very important MBM market of Indonesia due to the BSE issue. There is hope that this issue will be resolved in the near future and with a successful re-opening of this market, our return will easily match the US returns for meat and bone meal.

Another area of concern is the current long list of Specified Risk Materials (SRM) items that Canadian plants must remove out of the rendered by product stream as compared to the US short list for OTM cattle. These SRM items are associated with BSE and their regulations related back to that crisis in 2003. The CFIA requires that all SRM material be separated from non SRM material and be disposed of separately. It is estimated that this regulation costs the Canadian industry $31/head on OTM cattle.

This cost is strictly the difference in value form the return realized by a US plant on this material versus being a cost to the Canadian industry. All the plants must implement a verifiable process control, maintain separate lines and equipment to handle this material as well as the loss of revenue that would be generated by this material. The operational costs were originally covered by federal government grants however ongoing costs (labour, maintenance) are now covered by the individual plants and is not included in the $31/head cost. One plant has spent significant money ($1million) to burn this SRM material generating energy that is used by the plant. It is estimated that this system cuts the cost by 1/2 when running properly.

As the under thirty-month-old (UTM) cattle SRM list is similar in both the US and Canada the cost is considered similar between both countries.

One other note to mention is that prior to BSE, Canada would sell some bone-in OTM product into the market that it can no longer save. This reduction in return is not included in the $31/head number however would not be considered significant.

Currently Canada has a BSE rating of controlled risk status and can only apply for the negligible risk status in 2020. There is no chance that the CFIA will change the SRM list until we achieve negligible risk status. It is still very unclear that the CFIA will change the SRM list even if Canada becomes negligible risk. As such this disadvantage could be a long-term permanent cost to the Canadian industry versus US counterparts.

Another interesting note is that live cattle can enter the US and be processed there with no consequence relating to SRM disposal as they would follow the US protocols.

They are also eligible to go to markets where we cannot currently go. These same cattle processed in Canada are penalized.

Hides

Due to the weather conditions in Western Canada as compared to the bulk of the US, western hides tend to be thicker for both the fed animals as well as the cows. As such western hides garner a small premium as compared to the US ($5/head). As most of the hides are moved into the Asian market western plants also have a slight competitive freight advantage.

Both of the larger beef plants have their own in-house hide operations which are comparable/identical to their US sister plants, so they compare very favorably from an operation cost standpoint for hide processing.

The smaller plants are at a competitive disadvantage as they must move their hides to an outside facility. Also, with the smaller numbers their cost on average is higher than the smaller plants in the US.

Summary of Packing Revenue Performance

For most of the year the return of most items produced from a beef animal are less in Canada than the US. One factor that will influence this a great deal is the USDA choice select spread. Times of no to little spread will help the Canadian industry while times of a large spread tend to hurt our Alberta's competitiveness to the US. Seasonally, Canada will do better during
the summer months than the winter months especially on the fed young cattle. A shift to more cow production occurs in late fall as fed margin suffers and cow margin improves.

Overall the return generated by the Alberta packing industry will on average be upwards of $20-$25/head behind the US industry. This estimate includes all product sales: primals, trim, grind variety meats, hides, and rendered products. The industry needs to do a better job in identifying markets where it can secure an equivalent or premium return versus the US. Canadian product is of equal or better quality than the product being produced out of the US, so accepting a discounted return will only hurt the industry in the long term.

For Alberta to remain competitive long term we must ensure that regulatory requirements are equivalent on both sides of the border. The SRM rule is a clear example where we are severely disadvantaged and this needs to be fixed. There is no legitimate reason for this rule to stay in effect after Canada gains BSE negligible status.

Packing Revenue 2008-2018

The growth of branded AAA programs and the higher utilization rate of the AAA grade is far greater now than before. Ten to fifteen years ago a significant amount of AAA meat was sold at levels far below the US Choice equivalent price as much of it was downgraded to an AA price. With much higher utilization usage by the Canadian retail trade; the Canadian packer is closer to achieving price parity and during the summer months, getting a slight premium for their AAA product. Consequently, the cattle industry has responded by producing more AAA cattle to meet this need.

Premiums paid to the producers are more prevalent now than before; for supplying cattle that fit the AAA and branded categories.

The ground beef complex is far more advanced now than before. Government regulations surrounding *E. coli* 0157 have forced the major retail trade to stop in store grinding and has shifted the burden of food safety back to the packer. All packers have accepted this challenge and focus considerable effort on food safety. It is also an area where best practices are shared within all participants. Training of front-line staff is also present in all facilities. As such, the industry is producing the highest quality of food safe product ever.

Animal welfare is another area where the industry has focused more attention. Today, people are very interested in this topic and are very vocal when the proper job is not done. Here again the whole value chain has come together to improve all processes to ensure we are meeting the rigid requirements of animal welfare.

Asian exports are a vital component to the export business of the Canadian packer. Exports to this region have improved over the past 10 years and with the recently signed CPTPP, Canada will enjoy a competitive advantage over our main competitor, the United States. This market is key to improving the margin of the industry as we sell more high-quality beef to what will arguably be the largest beef consumer market in the future. The Japanese chilled market is one of the priciest in the world.

Europe is another great opportunity for the Canadian industry. Packers are now starting to explore this market where the industry previously sold none. The market is ready for Canadian high-quality beef products and the industry believe the market will pay for this quality.

The growth of the case ready/value added business over the past 10 -15 years has been significant. As mentioned, these businesses are a great complement to the primary processing facilities and one that is helping to change the retail landscape. The emergence of on-line shopping is now starting to make its way into the home meal delivery business and the case ready / value added sector is nicely positioned to supply portion beef products to this up and
coming business.

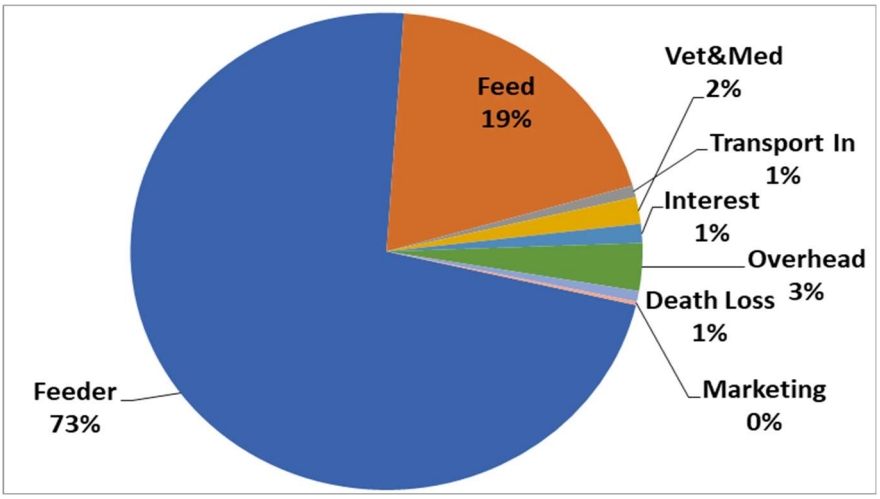
Cost Competitiveness

This section of the report examines the costs of feeding cattle in Alberta and the three U.S. states in question. The major costs addressed in this section include feed and labour for the cattle feeding sector, as well as the costs for the beef packing operations.

Feed Costs

As a starting point, the following graphic outlines the breakdown of the major costs of feeding yearling steers in Alberta on average for 2018, based on Canfax Trends data.2

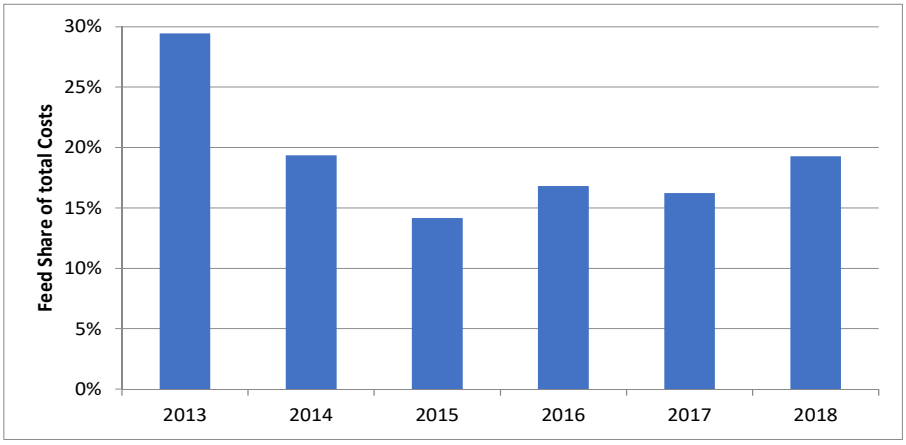
Figure 38: Total Cattle Feeding Costs Share 2018 Average



Source: Canfax

After the cost of the feeder cattle animal, the largest cattle feeding cost is feed. The cost of feed of course varies from day to day, but on average during 2018, feed represented 19% of the total costs including the feeder animal. During the 2013-2017 period, feed costs ranged from a 29% share in 2013 to a low of 14% in 2015.

Figure 39: Feed Share of Total Costs Annual Average 2013-2018

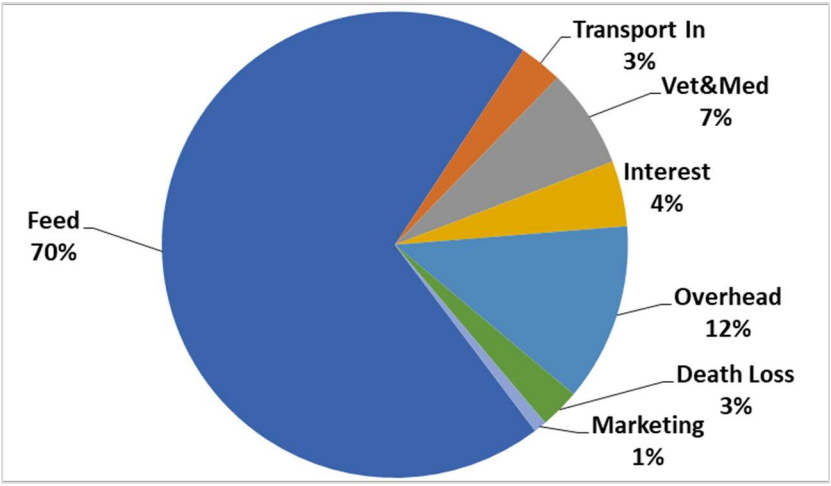


Source: Canfax

[2] Canfax Trends is a cost of production program for a variety of cattle in-weights and out-weights. The Canfax data is representative of actual feeding costs and conditions in Alberta. The data and results are respected and utilized by Alberta cattle feeders.

Removing the cost of the feeder cattle input, feed becomes by far the greatest operating cost of gain. From 2013-2018 the feed cost represented 70% of all operating costs. The Canfax classification of overhead, which includes labor, energy, administration, among others, amounted to an average of 12% of operating costs.

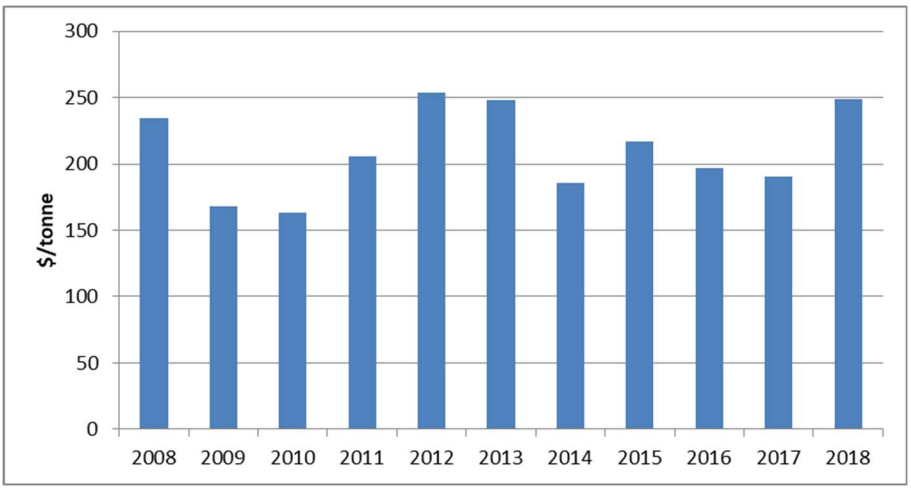
Figure 40: Alberta Yearling Feeding Operating Cost of Gain Share (2013-2018 Average)



Source: Canfax

Regarding the feed costs, the primary feed element is barley in Alberta. Silage and supplements comprise about 12% of feed costs while barley, or to a lesser extend wheat, represents 88%. Over the last five years, barley prices have averaged $208/tonne while prices in 2018 were $250.

Figure 41: Alberta Barley Annual Average Price 2008-2018



Source: Canfax

The performance of feed prices roughly corresponds to the share of feed in costs. For example, in 2013, feed costs were relatively high. In that year feed represented a very high share of total costs of feeding yearlings. In 2018 barley prices were very high and in turn they also represented a larger share of the total costs of feeding yearlings.

Alberta-U.S. Feed Price Spread

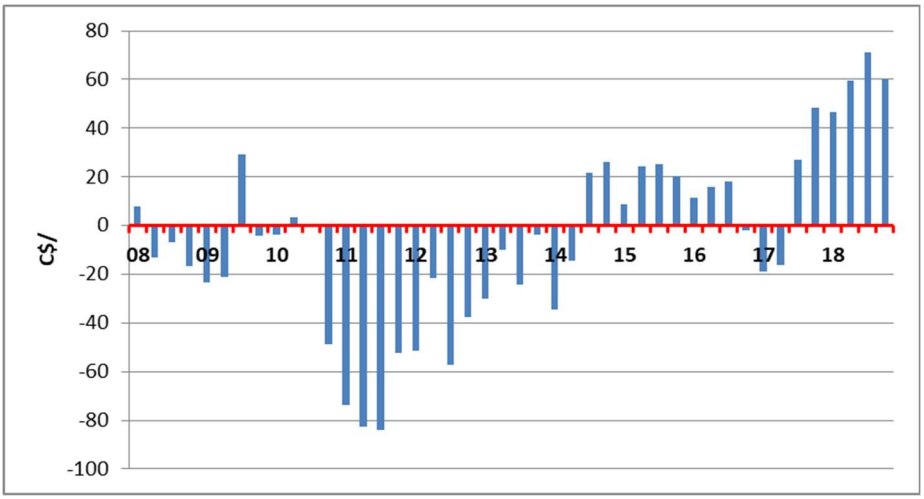
The most important aspect of feed from a competitive perspective, however, is relative feed costs. That is, the key issue is how Alberta feed costs compare to feed costs in the United States. Relative price spreads between regions are a key competitive benchmark with a lower price obviously providing an advantage.

While barley is the benchmark feed ingredient in Alberta, corn is the primary feedstuff in the United States. The following graph compares the price of Lethbridge barley against Omaha corn on a barley equivalent basis.

Alberta barley lost its competitive advantage in 2017-2018

As can be seen on the graph, for much of the ten years from 2008 through 2017, Alberta had a competitive feed advantage. In fact, the 2008-2017 average amounted to $12/tonne for Alberta barley under Omaha corn. However, starting in the second half of 2017 Alberta barley began to lose its competitive advantage. The spread disadvantage for Alberta reached extraordinary levels in 2018.

Figure 42: Alberta Barley vs Omaha Corn Quarterly 2008-2018



Source: Canfax

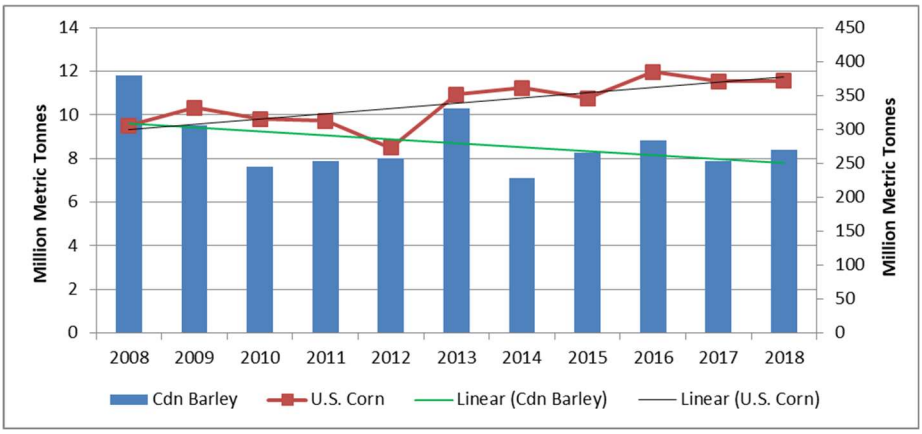
Feed Production Trends

Part of the issue in the relative pricing is relative production feed production. Statistics Canada no longer tabulates prairie crop production separately; it only reports Canada-wide totals. With that said, the prairies represent about 95% of Canadian barley production. As such the Canadian volume serves as a proxy for prairie barley availability.

In that regard, total Canadian barley production has declined at a compound annual rate of 3% from 2008 to 2018. Total production is down by 29% over that 2008 to

2018 period. In contrast U.S. corn production has increased at a compound rate of 2% over that time with a total change of 21% growth.

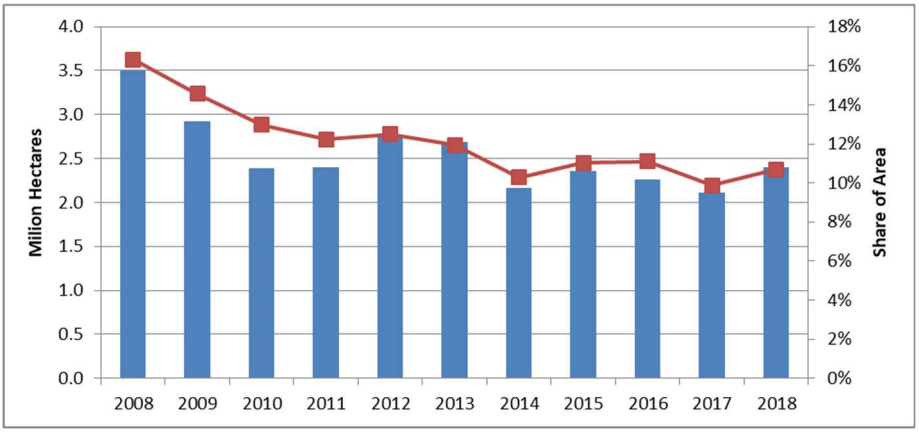
Figure 43: Alberta Barley and U.S. Corn Production



Source: USDA and Statistics Canada

One obvious issue is declining acreage dedicated to barley. In 2008 barley hectares harvested amounted to 3.5 million. That declined to less than 2.5 million hectares in 2018. Barley's share of the area dedicated to barley, canola, oats or wheat declined from about 16% in 2008 to 11% in 2018.

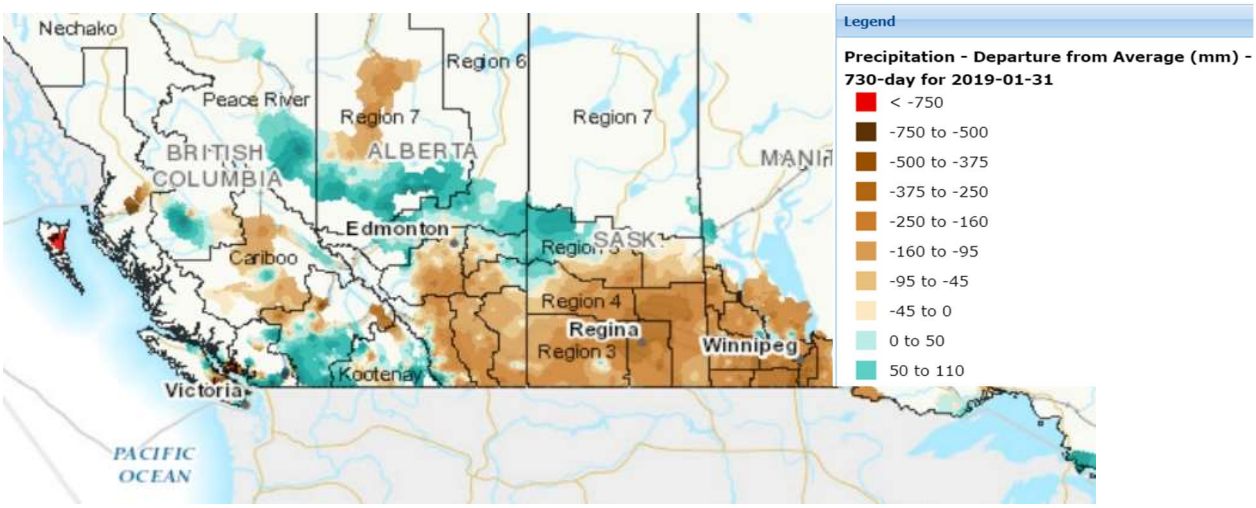
Figure 44: Barley Harvested Hectares and Share of Selected Crops



Source: Statistics Canada. Table 32-10-0359-01

Another challenge for barley production relative to corn in the United States has been dryness and resulting yields. The following figure is a map which shows precipitation deviation from average over the past two years. The map indicates that many of the growing areas of the southern and central prairies have seen from 160 to 500 millimeters less precipitation than average over the two years.

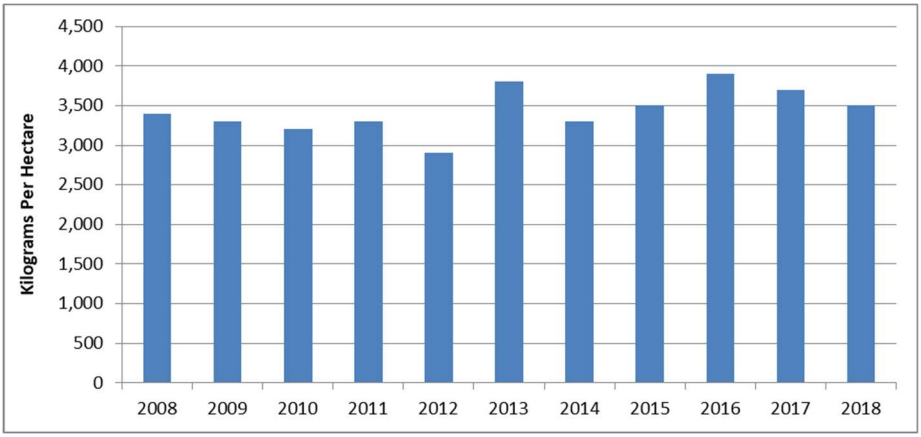
Figure 45: Precipitation Departure from Average – 730 Day January 31, 2019



Source: Agriculture and Agri-Food Canada (AAFC) Agroclimatic Interactive Maps

This would negatively impact barley yields. The graph below shows the yields have been largely unchanged between 2008 and 2018. That stands in contrast to corn yields in the United States which have increased by 15% over the same timeframe.

Figure 46: Canadian Barley Yields 2008-2018



Source: Statistics Canada. Table 32-10-0359-01

Feed Production Issues

Feed is without question the most important factor in determining whether a region can sustain a competitive cattle feeding sector. Access and competitive pricing are critical for livestock growth in a region. Based on the above data in 2017 and 2018 this has become a serious challenge in Alberta. In that regard, part of the issue was the impact of dryness and/or drought on yields and supplies.

In addition, export is the other factor as low grain yields in other parts of the globe led to the sentiments that Europe would likely draw barley out of the Ukraine, leading China to buy large quantities of Canadian barley. This seems to have come to fruition as there have been significant exports to China.

With that noted, the macro view is that barley has been a declining crop. The micro view is that high prices will likely lead to larger acreage in 2019. Declining acreage has been due to wheat and canola providing a greater profit per acre (although this year barley has been good for farmers).

Barley is the most important crop but given the prices and supplies wheat is becoming more of a feeding factor. Feed companies estimate as of the winter of 2019 that 15% of the wheat crop this year is of feed wheat quality (not milling). This has led to lower prices into feedlots meaning there has been more wheat used in cattle rations during 2018 and 2019.

Corn is another important alternative. As has been the case for at least a decade, corn is playing the role of putting a cap on barley prices. Over the past 2 years, when barley gets to a certain critical point relative to corn, unit trains of corn go north from the U.S. to Alberta. This is usually instigated by some of the larger feedlots in Southern Alberta. For example, in late summer 2018, barley rose to $250+/tonne. Corn started to trade into Southern Alberta at this time priced at $246-250/tonne, effectively capping barley prices.

As another example of the relationship, when the September 2018 USDA crop report was released, corn delivered into Lethbridge feed yards dropped to close to $240. This led to a corresponding decline in barley prices. Furthermore, in the early fall of 2018, barley was trading at around $210-215 traded into southern Alberta feedlots. One of the challenges at that time was that a lot of the barley grown was good quality malt barley and was being exported to markets like Australia. Farmers were bullish and holding onto supplies. At this time, unit train corn was on par with barley when valued 1:1. Unit trains began to be traded into Southern Alberta the first week of October as feeders made decisions on feed for the season.

In addition, there is a very small pool of line companies with the capability to rail unit trains of corn into Alberta. Unit trains allow for corn to be economical although trans-loading costs quite high at the large line companies. The alternative is to bring in singles which is prohibitive due to significantly increased freight rates relative to unit trains. Singles don't allow the price to get under barley. This means that small amount of line companies controls the availability of affordable corn into Alberta

Feed companies note that greater competition in independent corn trans-loading facilities with the ability to unload unit trains would decrease price of corn to the feedlot and increase competitiveness with barley. This in turn would cap the barley price lower than in 2017 and 2018 relative to corn. In addition, further investment into steam-flaking would add value to corn delivered southern Alberta feedlots.

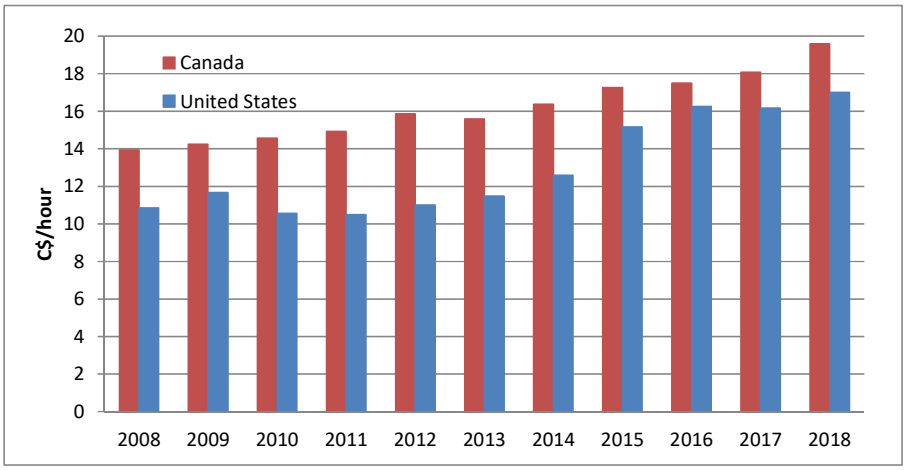
Labour Costs

As noted in the regulatory section below, farm labour and its regulation is one of the biggest issues facing feedlots, farms and ranches in Alberta. Canadian agricultural wages have been growing at a compound annual rate of 3.5% from 2008 to 2018. According to Statistics Canada data, agricultural worker wages Average agricultural wages averaged just under $20/hour in 2018. That compares to the 1.6% annual Canadian inflation rate over that same time period.

By comparison, U.S. farm animal labor averaged just over US$13/hour in 2018. Wages increased at an annual rate of 2.6% from 2008 through 2018.

Of course, when converted to Canadian dollars the differential to Canadian labor costs decreases significantly, at least with the depreciation of the C$ over the 2013-2018 period. In addition, with the conversion to Canadian dollars, the rate of increase in U.S. wages from 2008 to 2018 increases from 2.6% to 4.6%. With that noted, the Canadian agricultural wage versus the U.S. animal worker wage was about C$2.60/hour greater in 2018. The 2008 to 2018 average Canada-U.S. differential stood at C$3.15 greater than the U.S. rate.

Figure 47: Canadian and U.S. Agricultural Wages, 2008-2018 Annual Average

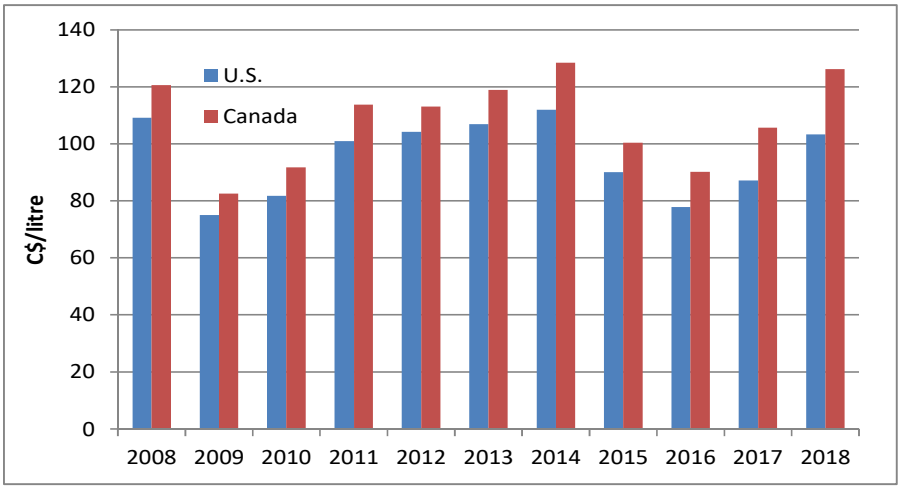


Source: USDA National Agricultural Statistics Service (NASS) and Statistics Canada. Table 14-10-0064-01

Fuel

Diesel fuel costs average about $0.09/litre higher in Canada than in the United States over the period from 2008 to 2018. In 2018 the differential between Calgary and Midwest diesel amounted to $0.13/litre. The differential differs widely from year to year with no pattern or trend from 2008 through 2018. However, the differential has consistently been a negative one, with Canadian average pricing being higher for the entire period.

Figure 48: Calgary and U.S. Midwest Diesel Prices 2008-2018



Source: U.S. Bureau of Labor Statistics and Statistics Canada. Table 18-10-0001-01

This differential in fuel pricing has a direct impact on any element of the beef supply chain that is burning fuel for its operations, from the tractors for feeding cattle to the trucks used for hauling them. This differential is well known and consistent in that Canadian producers are at a cost disadvantage when it comes to the cost of fuel.

A more recent addition to the cost profile for the beef sector are new federal and provincial tax policies together commonly termed the "carbon tax". A report by Brandon Schaufele of Western University provides some insight into the anticipated effects of Canada's carbon pricing scheme on the beef sector.[3] While it is beyond the scope of this report to model the exact outcomes, it is clear that there will be some negative impact in that it will exacerbate the existing cost disadvantage already felt by the Canadian beef sector vis-à-vis their US counterparts.

Carbon pricing will present two costs for cow-calf producers:

- a "technical cost effect" which reflects direct and indirect increases in input costs
- an "output effect" which measures the contraction in the industry as a result of the carbon price

According to the econometric modelling in that report, the estimated total cost of carbon prices for Alberta producers at two different carbon pricing levels was modelled as follows:

Table 3: Estimated Cost-Increase of Carbon Pricing to Alberta Cow-Calf Producers

	Carbon Price	
Output Price	$20/t CO2e	$40/t CO2e
$100/cwt	$2.70/cwt	$3.61/cwt
$200/cwt	$1.17/cwt	$2.04/cwt

Source: Schaufele, Carbon Pricing and the Canadian Beef Sector

Likewise, the report modelled the total impact on the feedlot sector which analysis included the long-run relationship between oil prices and both feeder and fed cattle prices. The report concludes that carbon pricing would be estimated to result in the following total cost increases in the Canadian feedlot sector.

Table 4: Estimated Cost-Increase of Carbon Pricing to Canadian Feedlots

	Carbon Price	
	$20/t CO2e	$40/t CO2e
No farm fuel exemption	$1.50/cwt	$2.53/cwt
With farm fuel exemption	$1.10/cwt	$1.83/cwt

Source: Schaufele, Carbon Pricing and the Canadian Beef Sector

It would also be expected that the beef processing sector would be impacted similarly, though the report did not model those impacts directly.

At present, Alberta's carbon tax is at $30/tonne, effective January 1, 2018 (initially implemented at $20/tonne in 2017). It remains to be seen what effect the change in government will have on Alberta's approach to the federal carbon pricing regime. It is clear that carbon pricing will present a cost to the Alberta industry which does not have a corollary in any of the US states in question.

Head Tax

The section above outlines one particular tax, the carbon tax, which has significantly larger impact on the Alberta cow-calf and feeding sectors than it does on their counterparts in the United States.

Beef businesses are generally impacted similarly to their non-beef farm neighbours in terms of taxation by municipal, provincial and federal governments. But there is one other area where beef producers specifically are taxed separately from other landowners and farmers, causing some disadvantage compared to their counterparts in the United States. The County of Lethbridge, in 2016 imposed three new taxes whose purpose was to fund improvements to their road system. Amongst these was a new tax on confined feeding operations, commonly referred to as the "head tax".

A 2017 study by the University of Calgary examines the impact of the head tax on the feeding sector and recommends alternatives.4 The tax was implemented in 2017 at a cost of $4 per animal unit capacity – an amount confirmed by one of the individuals who provided financial information for his feedlot information in the present study. The study estimates that the true impact on a feedlot operation will be in the range of $1.82-$3.03 per animal fed, depending on what percent of capacity a feedlot is operating in a given year.

One of the biggest criticisms of the specific design of the taxing mechanism is that it is based on total one-time capacity for a feedlot, not actual use of it. It therefore

[3] Carbon Pricing and the Canadian Beef Sector. Brandon Schaufele, Graburn Economics and Ivey Business School, Western University, London, ON. http://www.cattle.ca/assets/310b3f80a0/Final-Report-revised-Schaufele-2017.pdf

[4] Bev Dahlby, Melville McMillan and Mukesh Khanal, Taxing Feedlots in Alberta: Lethbridge County's Tax on Confined Feeding Operations. University of Calgary School of Public Policy Publications, November 2017.

essentially introduces a fixed cost, rather than a variable cost per head. The University of Calgary therefore recommends several alternatives for the County of Lethbridge. While the head tax presents a unique disadvantage to feedlot operations only in that one County, it remains to be seen whether other surrounding counties see this as a precedent to be emulated. It is also important to note that the tax also indirectly affects the cow-calf and backgrounding operations supplying those feedlots from across the province, and as such presents a competitive disadvantage to Alberta's beef sector.

Cattle Performance and Animal Health

Morbidity, average daily gains and feed conversions are common industry yardsticks for costs and performance. Based on academic research papers, discussions with University extension specialists as well as with cattle feeders that have fed cattle in both countries, the differences in performance and animal health between regions are very hard to quantify. Furthermore, differences between regions are not consistent in terms of the factor at play factor or timing. Most differences in performance and health are attributed to weather or climate but with no consensus as to sustained advantages or disadvantages. Perhaps not surprisingly there is typically as much variation in performance in terms of average daily gains, feed conversion and morbidity within regions as there is between regions. Also, there is likely as much differential between pens of cattle in one lot as there could be between geographic regions.

Most cattle feeding budgets on feeding yearlings such as with Canfax's Trends data or Iowa State, Kansas State University use average daily gains of 3.5 or 3.7 pounds per day. Days on feed tend to be about 150-160 days. Death loss or morbidity tends to run lower in Alberta than in the United States but again, the differential is probably as great between Alberta cattle feeders as between Alberta and the three main U.S. states. Good benchmarks for the U.S. regions range from 1.5-2.0%. The range seems narrow, but it is important and again, the variance is greater within pens often more than between regions. As a point of reference, Alberta's benchmark on death loss would be closer to 1%.

The main point is that the assertion here is that there is no sustained competitive advantage between the three main U.S. regions themselves or between those regions and Alberta. At any given time of year or between years one region may be advantaged or disadvantaged, but there I not enough of a differential to state that Alberta faces competitive challenges or opportunities as it relates to these areas.

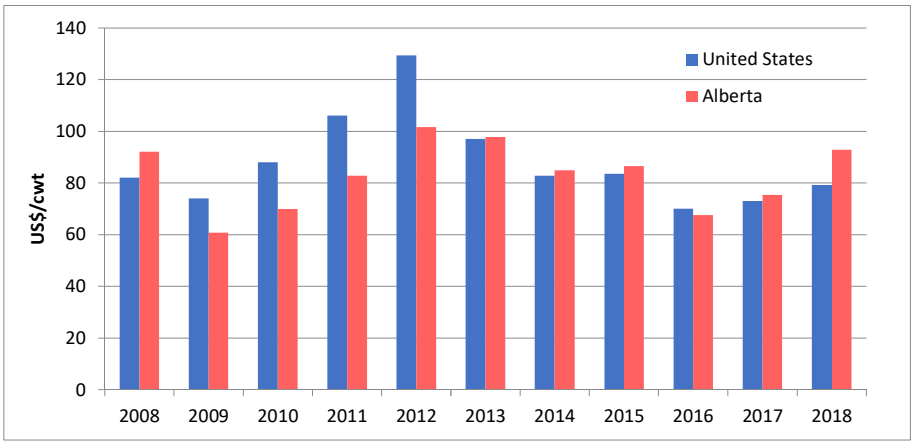
Alberta-U.S. Cost of Gain Comparison

As noted above, the Canfax Trends data is respected and representative of feeding costs and variables in Alberta. The Kansas State "AgManager" costing information is representative of cattle feeding costs and factor variables in the three main U.S. states. Furthermore, and most importantly, the methodologies of the two models, while not exact, are similar.

Over the 11 years from 2008 to 2018, the average cost of gain in Alberta was about US$83/cwt. The Kansas cost of gain over that same time frame was about US$88/cwt. The Alberta cost was greater than the U.S. in six of the 11 years. Recall as noted above that feed is about 70% of the total cost of gain. The main reason for the

Alberta historical advantage was the serious drought ears of 2012 and 2012 when U.S. grain costs soared compared to Alberta costs. Alberta is at a feed disadvantage in 2018 by about $13/cwt due to Alberta's drought related feed cost disadvantage.

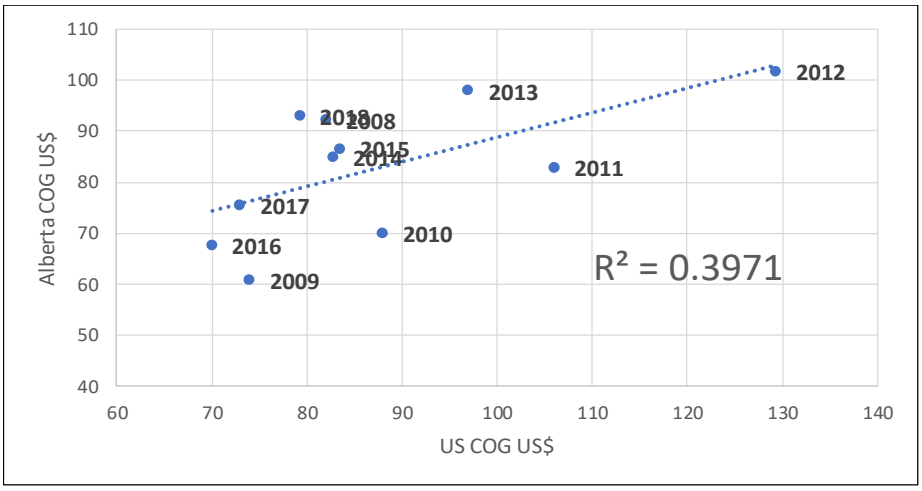
Figure 49: Total Cost of Gain Alberta and US, 2008-2018



Source: Kansas State University Extension and Agricultural Economics, Canfax

The cost of gain in Alberta and the U.S. regions are moderately correlated. The direction of the gains higher or lower are similar but the relationship is not particular tight between the regions.

Figure 50: Alberta-U.S. Cost of Gain Relationship 2008-2018

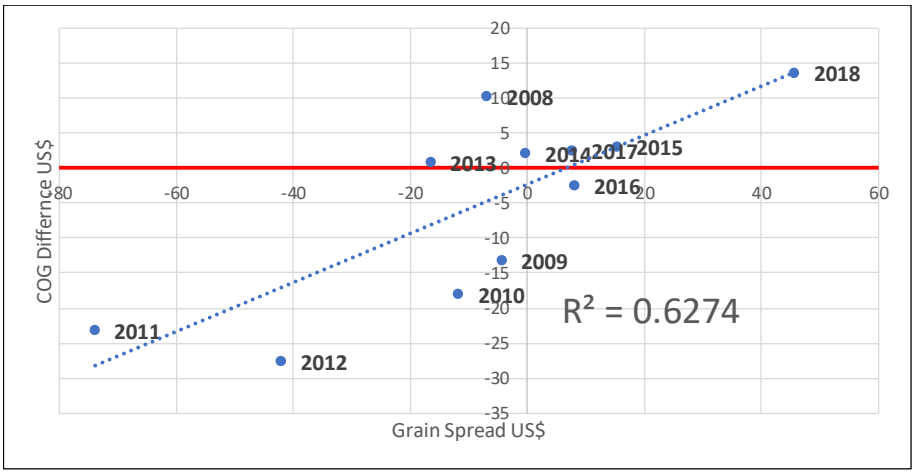


Source: Kansas State University Extension and Agricultural Economics, Canfax

The reason for the lack of a strong correlation between the cost of gains is grain prices. Note in the figures above that there are wide variations between relative grain costs between Alberta and the main cattle feeding regions of the United States. Perhaps not surprisingly, it is the grain cost that is the main driver for the feed cost of gain differentials between regions.

Recall the strong similarity of key non-grain related costs and factors between the cattle feeding regions. Given those similarities it is the grain costs that drive the overall competitive advantage or disadvantage at any given time.

Figure 51: Alberta-U.S. Cost of Gain Differential vs Grain Price Differential, 2008-2018



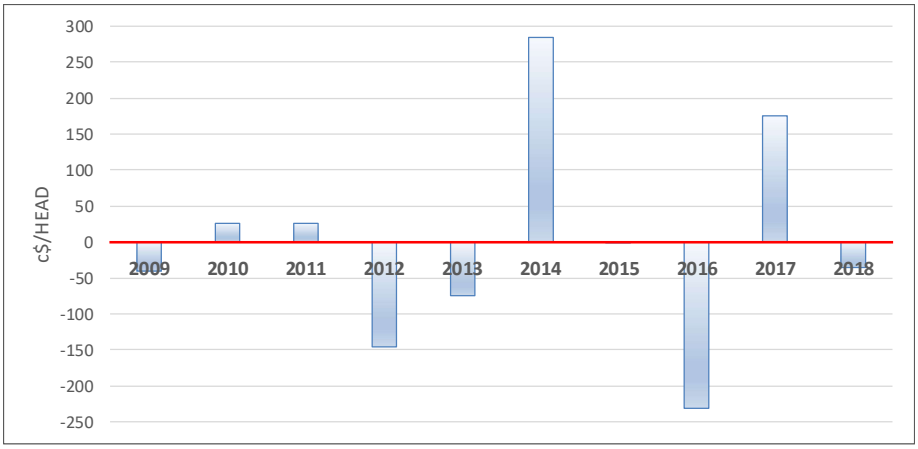
Source: Kansas State University Extension and Agricultural Economics, Canfax

Alberta Feeding Margins

Cattle feeding is a very narrow margin business when measured over a longer period. In any given year, margins can be very large, or very poor or in-fact very narrow. The number of variables on the cost and revenue side of the income statement are highly variable, as noted above on cattle and grain. On average, however, as stated, the margins are very narrow. In fact, in the ten years from 2009 to 2019, cattle feeding margins averaged right around breakeven according to Canfax data.

The key point is that there are many variables that are based on market forces that are not within the control of the cattle feeder. As such the importance of several other factors such as medication, animal husbandry and regulations are magnified. That is, while grain costs are the biggest factor, followed by labor, it is the smaller costing factors that can make a material difference between long term profit and loss.

Figure 52: Alberta Cattle Feeding Margins
Annual per Head, 2009-2018



Source: Canfax

Beef Packing Operations

In relation to the plants in Alberta, the costs associated individually to operating these facilities can vary significantly due to the size of the operation. The larger plants will be more competitive to the larger US facilities while the smaller ones would typically have a higher cost. The smaller plants are typically more flexible and as such have a greater opportunity to generate more revenue associated with this flexibility.

Another variable that has great bearing competing with US counterparts is the Foreign exchange value. With the current weak Canadian dollar vs. the US (1.3278) the 2 larger plants listed are very competitive with their US counterparts. They may even be the lowest cost plant in their company, however, as the dollar gains strength they will become less competitive. The challenge with the FOREX is these operations cannot control it and are at the mercy of it. It is estimated that at a forex of 1.20 and less these plants will start falling significantly behind their US counterparts.

Another interesting note is all the Alberta plants process both fed cattle and cows where in the US the plants typically specialize in one or the other. Thereby, U.S. plants are typically more efficient and can control their costs better. It is very common for an efficient smaller cow facility to be very cost competitive with the larger fed facilities. Like the seasonal variation in the Canadian A grades there is also variation in the processing of cows where more are processed in the winter months. This variation also makes it more difficult to manage the Canadian processing costs.

From the standpoint of regulatory costs CFIA and the grading agency are working on a cost recovery model so the Canadian industry will incur some additional costs as opposed to US counterparts. These costs would not be significant to the cost of running these larger facilities.

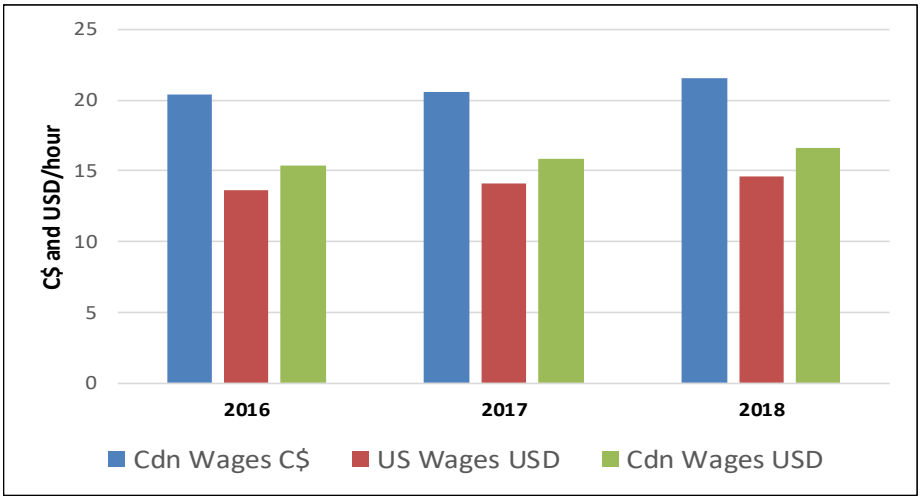
As the two big plants have sister plants in the US, issues such as food safety, employee health and safety, environmental, humane handling and their associated

costs would be closely monitored and compared. It is common for the larger facilities to use balance scorecards to manage their facilities and provide a measurement tool for plant comparison. These scorecards are compartmentalized so the above-mentioned areas have their key performance indicators and costs measured daily, weekly, monthly, and quarterly. This provides them with a great tool to compare them internally, identify areas of opportunity and develop corrective actions to improve. As such any deficiency in any of the Canadian facilities would be identified quickly and it would be a rare occurrence for a Canadian facility to be allowed to be out of compliance.

Packaging (boxes, bags, ground beef film) is a significant cost to the beef packing industry (approx. $30-$35/head) for the larger operations and would be slightly higher for the smaller ones as their purchasing power would be less. When these costs are compared to the U.S., they would be almost identical. The larger operators have a corporate purchasing department. that negotiate these costs for all their facilities and typically agree to a one price for all plants. As these costs are in US funds any change in the forex will not alter the competitiveness between the countries.

Labor is the largest non-cattle related cost to the beef packing industry. Based on a research conducted by Oklahoma State University in 2011 entitled, Feasibility Template for a Fresh Beef Packing Plant, labor represents nearly three quarters of plant operating costs. Based on Statistics Canada data, Canadian meat processors have a labor cost disadvantage relative to U.S. meat processors. This is the case even considering the exchange rate. Canadian labor costs were about C$21/hour on average from 2016-2018 compared to US$14 in the United States. With the Canadian wage converted to USD, the average Canadian wage was just under US$16, a two-dollar U.S. disadvantage.

Figure 53: Canadian and U.S. Meat Labor Costs
Annual Average 2016-2018



Source: Statistics Canada and US Bureau of Labor Statistics

Most facilities in the US and Canada are unionized (typically the United Food and Commercial Workers Union) and contracts are usually 3-4 years in length. Also, the large facilities utilize their corporate Human Resources departments to manage the negotiating process and they attempt to minimize regional / country differences to keep all the plants competitive to each other as well as their competitors. As shown above, the average meat plant wages in Canada are higher than in the United States. The situation may however be different when specifically comparing the Alberta beef plants with their U.S. counterparts. In fact, based on information from the plants, as of the first quarter of 2019, the Canadian plants enjoy a small labor cost advantage over their US sister plants due to the current exchange rate. However, if the Canadian dollar strengthens this advantage will turn into a disadvantage. Many plants' union contracts are due in the next year or two and the strength in the current US economy will make it more difficult to negotiate a favorable labor rate at these facilities.

Utilities needed to run these facilities (electricity, natural gas, wastewater, garbage disposal) are also a major cost to running a beef facility. Based on the above noted research, utilities might amount to 15-20% of total costs. As with the other costs mentioned above these ones are influenced by the forex rate with Canada enjoying the benefit right now. The larger plants do compare these costs with their sister plants so utilization rates would be comparable.

As these rates are usually determined by province or state these costs can vary however it is usually relatively comparable between plants.

Transportation is another major cost the packers bare as they ship their products to markets worldwide. The Alberta packers have an advantage in western Canada and the markets in Asia however are disadvantaged everywhere else in the world. The advantage in going to Asia is the ground transportation cost to getting to the port of Vancouver. As the bulk of the US

industry resides in the Mid-west Alberta's freight advantage is estimated to be $0.03-$0.05/lb. The actual trans-pacific shipping costs are relatively similar whether product is leaving Vancouver or Seattle and Oakland where the bulk of the US shipments would depart from.

As mentioned earlier in the report there are no markets in the US where Canadian plants would have any advantage. This is the case even in the markets where Canadian plants are closer than the bulk of the US beef plants. That is because there are always regional plants of significant size that are very active in these locations. Any product travelling to Mexico and South America is at a substantial disadvantage for Canadian plants.

As well any product travelling to Europe, Russia or to Africa Alberta plants would incur major freight costs in getting to the Atlantic coast versus the bulk of the US industry.

Automation is an area of opportunity for the packing industry and could certainly temper the effect of the forex on the operating cost of the plants in Canada. A clear example of this is the automated box storage facilities now being utilized in most larger US facilities. These have reduced the labor requirements from up to a couple of

hundred employees to less than 50. Only one Canadian plant has this current technology in use. Further advances in technology would certainly continue to reduce the need for labor and would certainly level the playing field between the US and Canada.

The bottom line in terms of total costs of operations for slaughter and fabrication is that an Alberta plant could have costs per head ranging from about C$225 to $250/head, depending on all the factors noted above. In the United States, the costs per head would likely range around $175-190/head based on the same factors. Converting to the US dollar at the average 2018 exchange rate of 1.30, the Canadian plant would clearly be working at the lower end of the U.S. plant range. At an exchange rate of 1.20 the Canadian plants would begin to move into the higher end or above the U.S. range.

Comparison: 2008 - 2018
Operations for the most part are very similar to years ago, however advances are seen in food safety and animal handling. The packing business remains very labour-intensive with only limited advances in the primary process of transforming cattle into beef.

One advance currently being utilized at one facility in Alberta is the automated box storage. A significant labour savings (approx. 125 people) has been achieved using this system. The system also improves the picking/sorting/shipping of customer orders to more exacting requirements.

Final Notes on the Packing Industry
The Alberta beef packing industry currently enjoys a cost advantage over the US industry and will continue to help in the competitiveness of the overall Alberta beef value chain. However, this is very forex dependent and any significant shift in the rate can either positively or negatively affect this competitiveness.

Having said this, the industry always operates on a margin basis regardless of these factors. During times of good margin, all the plants will maximize throughput and conversely during times of thin margins, cutbacks are very evident. The plant operations will be influenced more by the forex while the cattle cost and selling prices will not when comparisons are done to the US industry.

The beef packing industry in North America has enjoyed record profitability. Even though we estimate that the Canadian industry is lagging behind the US, the profitability of the Canadian industry has been very good as well. Production levels for 2018 have exceed the year prior.

For Alberta to remain competitive long term the industry must work to ensure that all regulatory requirements are equivalent on both sides of the border. The SRM rule is a clear example where Canada is severely disadvantaged and clearly needs to be fixed. There is no legitimate reason for this rule to stay in effect after Canada gains BSE negligible status.

Regulatory Issues and Competitiveness

Access to Labour

Definition of Issue

There are significant shortages of labour in the entire Canadian beef supply chain which is limiting the industry's ability to expand. Is this issue isolated to only Canada or does the US beef industry grapple with the same problem? Does the access of labour have a significant impact on competitiveness in the beef industry between Canada and the US?

Alberta Situation

Agriculture/Cattle Industry

- The labour shortage in Canada's agriculture industry has doubled to 59,000 workers in the past 10 years and is expected to double again to 114,000 workers by 2025.
- Job vacancy rates on farm are around seven to ten percent compared to overall job vacancy of about two percent.
- The beef industry employs 11 percent of Canada's agricultural workforce, making it the agriculture sector's third largest employer.
- In 2014, the beef industry was unable to fill 3,500 jobs and cost the industry $141 million or 1.8 percent of sales in 2014.
- A report conducted by the NCFA in 2016 suggested that over 2,500 jobs in the feeders/feedlot sector remain vacant across Canada. If these vacancies were filled, it is estimated that output in the sector could increase $268 million. In Alberta alone, the annual impacts of labour shortages are estimated to cost the industry $147 million. This does not consider any restrictions that may arise from shortages of labour in the processing sector.
- The labour gap in the Canadian beef industry is expected to widen with an estimated 12,500 unfilled jobs by the year 2025. More than one in four jobs in Alberta will be at risk due to labour shortages. Alberta is predicted to have 6,400 more jobs than workers by the year 2025.
- Alberta accounts for 35 percent of all Canadian beef workers.
- Over the next 10 years, nearly one in three domestic workers in the beef industry is expected to retire.
- A study conducted by the Canadian Agricultural Human Resource Council indicated that 42 percent of beef producers were unable to find all the workers they needed in 2014.
- Negative impacts of labour shortages include, lower production, lost revenue, delaying expansion plans and production delays.
- Multiple feedlot operators that we spoke with cited labour availability as one of the biggest threats to the future of the industry. Operators are having a difficult time finding suitable domestic applicants.

- Many feedlot operators indicated that they are recruiting workers or have recruited workers through the Temporary Foreign Worker Program (TFWP). Operators raised several concerns about the efficiency of the TFWP. We heard that the application process for acquiring TFW's is onerous, lengthy, and time consuming. Operators have issue with the length of the application process. Stakeholders have indicated that from beginning to end, the process can take over six months.
- In 2014, there were 567,077 migrant workers employed in Canada, with migrant farm workers making up 12 percent of Canada's agricultural workforce compared to only 0.7 percent of the entire workforces. The Canadian agriculture industry relies on TFW's to employ its workforce.
- There are four streams under which employers can hire TFW's: the high-wage stream, the low-wage stream, the primary agriculture stream (SAWP and Primary Agriculture), and the stream dedicated to supporting permanent residency.
- Of the 12,162 employers who used the TFWP in 2013, 2,578 employers had a workforce of over 30 percent TFW's. An additional 1,123 employers had a workforce of 50 percent or more TFW's. This spurred changes to the TFWP in 2016.

Meat Processors

- The level of skill required in packing plants and the difficult environment makes it difficult to recruit and retain workers. Canadian employees are generally less inclined to remain in a position with difficult conditions than foreign workers who are working toward landed immigrant status.
- Shortages of labour result in loss of production, growth, time and potential for animal welfare concerns.
- In 2015, the Canadian Cattlemen's Association issued a report on Workforce Economic impact which found that workforce shortages are not allowing packing plants to operate at capacity and are reducing revenue by $14/head.
- In 2017, the vacancy rate for meat processing facilities that are rural abattoirs is approximately 9.3 percent. There are currently 1,000 vacancies in Canadian meat packing plants. Wages from these vacancies could mean another $98 million contributed to the overall economy.
- The 2014 overhaul to the Temporary Foreign Worker Program induced a cap to limit the number of low-wage temporary foreign workers that a business can employ. This can limit plants looking to expand and participate in new trade opportunities. Meat processors are unable to classify as "primary agriculture" and is therefore unable to employ workers through the primary agriculture stream. This limits their ability to recruit workers only through the stream for high-wage positions and stream for low-wage positions.
- Stakeholders have indicated that the processing of paperwork for an LMIA (Labour Market Impact Assessment) can take over six months.

United States Situation

- The United States Temporary Agricultural Program (H-2A and H-1B) provides a legal means to bring foreign-born workers to the US to perform seasonal and non-seasonal farm labour. Employers must demonstrate that they couldn't have recruited US workers to fill the respective position.
- The US Department of Agriculture estimates that in recent years, around one half of the farmworkers were undocumented.
- According to the 2014/15 National Agricultural Workers Survey (NAWS), 68 percent of hired farm workers were born in Mexico, 27 percent were born in the US, 4 percent in Central America, and 1 percent from other regions. The Survey also discovered that 80 percent of all farmworkers were Hispanic. This does not include workers that are in the H2-A program. The US strongly relies on the use of foreign labour to fulfil their agriculture workforce.
- Anecdotal information from US sources suggest that feedlot owners are having troubles staying fully employed and proficiently use immigrant workers to staff their feedlots.
- Continued efforts to reduce illegal immigration, which remove some workers and drive others underground, are adding additional stress on the agricultural workforce.
- Some experts in the US claim that red tape involved in temporary worker immigration leads to an inefficient system that drives employers to hire from a massive pool of unauthorized immigrants.

Beef Processors

- Beef processing plants cite the growing labour dilemma as their major concern in a recent survey conducted by Cattle Buyers Weekly.
- Widespread drought in the last decade forced plants to cut workers' hours, ultimately prompting them to find employment elsewhere. Improving weather conditions have now prompted the need for those workers to return back to work.
- In 2018 Cargill Inc. stated that they had 1,000 jobs unfilled. While this number represents less than 1 percent of Cargill's workforce, the shortage is slowing output and hindering production.

Comparative Impact

The table on the next page highlights some of the key differences and similarities between the Canadian and the US Foreign Worker Programs.

	Canada	United States
Application	Required to verify that there is a need for a temporary worker. (Labour Market Impact Assessment – LMIA)	Required to demonstrate the need for foreign workers and that there are no qualified or available US workers.
Foreign Worker Programs	Four streams: - Seasonal Agricultural Worker Program (SAWP) - Agriculture Stream - High-wage Stream - Low-wage Stream To be eligible for the Seasonal Agriculture Worker Program and the Agriculture Stream, production must be included on the National Commodities list.	Four streams: - H-1B – Specialized knowledge - H-2A – temporary or seasonal agricultural work - H-2B – temporary or seasonal workers in fields other than agriculture - H4 – spouses or unmarried children of H-visa holders
Annual Cap	Primary agriculture is exempt from following the cap on low-wage temporary foreign workers. However, this limit can create constraints for up-stream primary and secondary processors.	No cap on agricultural workers. An annual cap of 66,000 for H-2B program.
Duration	There currently is no limit on the number of years a TFW can work in Canada. Every two years the employer needs to renew their LMIA to extend the work permit.	H-2A workers can stay one year maximum which is then renewable for up to three consecutive years at which they must return home for three consecutive months before returning.
Wage	The employer must provide temporary foreign workers with the same wages and benefits as those provided to Canadian and permanent resident employees working in the same occupation.	Show that employing foreign workers will not adversely affect the wages and working conditions of similarly employed US workers.
Employer Requirements	Employers are required to pay for: - Round-trip transportation costs to the location of work in Canada and back to the TFW's country of permanent residence. - Day-to-day transportation to and from the on-site/offsite housing location to the work location. - TFW's private health insurance Employers must provide TFW's with adequate, suitable and affordable housing and can deduct a maximum of $30 per week from TFW's wage. Employers must provide proof that the housing has been inspected by governmental body, or private equivalent, to certify the safety of the housing.	Worker compensation insurance is required for the foreign worker. The employer is responsible to ensure that housing is certified so that there is enough room to accommodate the number of certified workers and meets all applicable standards. Employers are required to pay for: - Pay costs associated with recruiting their workforce including inbound transportation and visa-related expenses. - Pay for transportation, daily food expenses, and lodging for worker's return trip. - Transportation to and from the worksite from employer-provided housing

When comparing the two programs, there are not many differences. The major differences are with respect to employer responsibility. In Canada, employers are responsible to pay for workers transportation to and from their home country. They are also responsible to pay for day-to-day transportation to and from the place of work. This is not the case in the US. This could provide a small disadvantage to Canadian businesses.

It should be noted, however, that while on its face many of the programs seem similar, our consultations with beef industry stakeholders suggest that the difficulties in procuring sufficient labour are in practice more significant in Canada than they are in the United States. This also appears to be borne out by labour being a policy area of interest to Canadian beef organizations, while the cattlemen's associations for Nebraska, Kansas and Texas do not include labour regulations as an area of priority.

The focus of many of the comments from the various stakeholders as on labour shortages in the processing sector, as that can have a negative constraining impact on the upstream suppliers from feeding operations to cow-calf producers.

Farm and Ranch Workplace Legislation

Definition of Issue

Every farm operator wants to ensure that their operation is a safe place for their employees to work. Alberta has recently created new farm and ranch workplace legislation that will impact the way farms and ranches operate. How do farm and ranch workplace legislation in Alberta compare to the those legislated in the US? How might this legislation impact the competitiveness of the beef industry in relation to other states in the US?

Alberta Situation

- In 2015, the Alberta provincial government passed Bill 6, the *Enhanced Protection for Farm and Ranch Workers Act*. As part of this legislation, it was announced that there would be changes to employment standards, occupational health and safety, labour relations and workers' compensation for farm workers. Outlined below are the changes that have been legislated by the Alberta Government and are required to by followed on Alberta farms and ranches.

Employment Standards

- Employment standards legislation sets minimum standards for hours of work, overtime, overtime pay, holidays and general holiday pay, vacations pay, minimum wage and employees under the age of 18. Changes to employment standards in the Alberta agriculture sector came into effect January 1, 2018.
- The new employment standards are only applicable to farms or ranches with waged, non-family employees. Major changes to the previous employment standards include mandatory:
  - General holiday pay
  - Rest periods
  - Unpaid, job-protected leaves after 90 days of work
  - Vacations and vacation pay

Labour Relations

- Labour relations sets out the standard for relationships between employers and employees in unionized workplaces. Changes in the labour relations code came into effect January 1, 2018. As of January 1, waged, non-family farm and ranch workers have the right to unionize and set up bargaining units with their employers.

Occupational Health and Safety

- The *Occupational Health and Safety Act* sets the minimum standards for protecting waged, non-family farm and ranch workers. Employers must ensure the health and safety of workers on the site, as far as is reasonably practicable and workers must work safely and cooperate with their employer to the keep the workplace safe.
- As part of the change, OHS officers are authorized to investigate serious injuries or deaths of paid, non-family workers. A number of agriculture-specific rules came into effect December 1, 2018, many of which pertain to the safety of tools or equipment used on the farm and ensuring that employees are informed of the capabilities of those tools and equipment.

Workers Compensation

- Workers Compensation Benefit (WCB) provide no-fault insurance coverage in the event of a work-related injury. Coverage for farm operations with paid employees became mandatory as of January 1, 2016.

Minimum Wage

- As of October 1, 2018, the minimum wage for workers working in Alberta is $15 per hour. This is the highest minimum wage in all of Canada with the next highest being Ontario. The lowest minimum wage in Canada is $11 per hour in Nova Scotia.

Impact on Alberta Operations

- Farm workplace legislation was passed with the intent to improve working conditions and worker safety.
- Changes in farm and ranch workplace legislation have impacted employments costs on farm operations across Alberta. This only applies to farms and ranches that have wage-earning, non-family workers.
- During our interviews with feedlot operators, they indicated that changes in employment standards alone have increased per hour labour costs by nearly $1.50. This is a direct result of having to pay general holiday pay and vacation pay.
- Employers also now face the risk that their employees could unionize and even cease working through an organized strike. This could have devastating impacts to the welfare of livestock and normal day-to-day operations of the farm.

- It is mandatory that farm operators with waged, non-family employees purchase WCB coverage. Many feedlot operators we spoke with indicated they already had private insurance for their workers before the workplace legislation came into effect. Mandatory WCB forced them to double up on their workers' insurance because, from what we heard, operators preferred the benefits that their private insurance provided their workers. Stated otherwise, feedlot operators elected to keep their private insurance but are legislated to subscribe to WCB coverage.

United States Situation
Both state and federal legislation govern working conditions for workers in the United States.

Federal Labour Laws
Fair Labor Standards Act (FLSA)

- Minimum wage to most agricultural workers
- The federal minimum wage for covered, non-exempt employees is $7.25 USD per hour. Many states have their own minimum wages at which point, the employee is entitled to the higher of the two minimum wages.
- Overtime pay not applicable to farmworkers
- Any employers in agriculture who did not utilize more than 500 "man days" of agricultural labour in a calendar quarter of the preceding calendar year is exempt from the minimum wage and overtime pay provisions of the FLSA for the current calendar year.
- Additional exemptions from the minimum wage and overtime provisions apply to:
  - Immediate family members
  - Farms principally engaged on the range in the production of livestock are exempt from minimum wage and overtime provisions.
  - Local hand harvest laborers that are paid on a piece rate basis and were engaged in agriculture less than 13 weeks during the preceding calendar year.
  - Non-local minors, 16 years of age or under, who are hand harvesters, paid on a piece rate basis, employed on the same farm as their parent, and are paid the same piece rate as those older than 16.
- Employers are restricted from employing minors less than 16 years of age for hazardous occupations or tasks.
- There is no requirement under the FLSA for employers to give days off after previous consecutive days of work.

Migrant and Seasonal Agricultural Worker Protection Act

- Protects migrant and seasonal agricultural workers by establishing employment standards related to wages, housing, transportation, disclosures and recordkeeping.

- This legislation applies to migrant and seasonal workers but is very similar to the requirements set out in the FLSA. In addition, employers are responsible for ensuring that migrant workers have safe housing and transportation to and from the worksite.

National Labor Relations Acts

- The act excludes agricultural labourer from the term employee, thereby excluding agricultural labourers from the right to unionize and collective bargain.

Each state has different requirements with respect to labour laws. We will review the labour requirements in three major cattle producing states: Nebraska, Kansas, and Texas. There are many components of employment and labour laws that could be assessed. We have reviewed all labour components and have highlighted the ones that we believe are relevant for our assessment.

Nebraska

- Employers are not required to provide employees with vacation or holiday benefits. This includes premium pay for working on holidays.
- Nebraska's minimum wage is $9.00 USD/hour (C$11.97/hour).
- Does not have laws governing the payment of overtime and agricultural workers are exempt from the FLSA provision.
- In Nebraska, agricultural employers who employ unrelated employees are also exempt unless in a calendar year they employ 10 or more unrelated, full-time employees, on each working day for 13 calendar weeks.

Kansas

- Employers are not required to provide employees with vacation or holiday benefits. This includes premium pay for working on holidays.
- Nebraska's minimum wage is $7.25 USD/hour (C$9.64/hour).
- Has laws requiring employers to pay overtime to employees, however agricultural workers are exempt as per the FLSA exemption.
- In Kansas, agricultural employers are exempt from the requirement to provide workers compensation insurance for employees.

Texas

- Employers are not required to provide employees with vacation or holiday benefits. This includes premium pay for working on holiday.
- Texas' minimum wage is $7.25 USD/hour (C$9.64/hour).
- Does not have laws governing the payment of overtime and agricultural workers are exempt from the FLSA provision.
- In Texas, workers compensation laws do not make it mandatory for all employers to carry occupational injury insurance coverage.

Comparative Impact
It is rather clear that Alberta, and Canada as a whole, has more stringent labour regulations that govern the relationship between employee and employer than what is experienced in the US.

The mandatory minimum wage paid to farm workers differs greatly by province or state, but generally is higher in Canada. When considering minimum wage rates and by using an exchange rate of 1.33 CAD/USD, Alberta's minimum wage is only outpaced by three states – California, Washington, and Massachusetts. However, when compared to other major cattle producing states in the US, Alberta's minimum wage is significantly higher than Nebraska, Kansas, and Texas.

It is also important to consider the agriculture exemptions that exist under the FLSA. As previously stated, exemptions exist that spare employers from the minimum wage and overtime provisions of the FLSA. There are opportunities for agriculture employers, including those "principally engaged on the range in the production of livestock" to not be required to pay minimum wage. This provides the US with a key competitive advantage with respect to labour costs.

In addition to lower labour costs, US employers are also less regulated by on-farm legislation regarding employment standards, labour relations, and occupational health and safety. Farm workers in the US do not have the right to unionize and collectively bargain and very little can be found directly regarding employment standards and occupational health and safety for US farms.

Conclusion
The US has significantly less regulation regarding farm and ranch workplace legislation when compared to the Canada. In one way, this might mean that working conditions for farm employees are worse off in the states. On the contrary, it might also mean that employers can access labour quicker and easier than in the Canada.

Ultimately, less labour regulations and lower minimum wages provides the US cattle industry and competitive advantage to the Canadian cattle industry.

Labour Cost Competitiveness

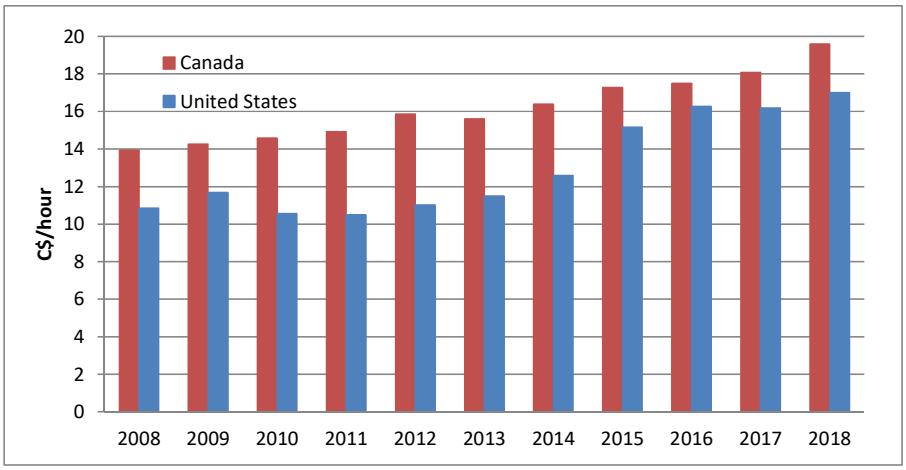
As noted above, farm labour is one of the biggest issues facing feedlots, farms and ranches in Alberta. Canadian agricultural wages have been growing at a compound annual rate of 3.5% from 2008 to 2018. According to Statistics Canada data, agricultural worker wages Average agricultural wages averaged just under $20/hour in 2018. That compares to the 1.6% annual Canadian inflation rate over that same time period.

By comparison, U.S. farm animal labor averaged just over US$13/hour in 2018. Wages increased at an annual rate of 2.6% from 2008 through 2018.

Of course, when converted to Canadian dollars the differential to Canadian labor costs decreases significantly, at least with the depreciation of the C$ over the 2013-2018 period. In addition, with the conversion to Canadian dollars, the rate of increase in U.S. wages from 2008 to 2018 increases from 2.6% to 4.6%. With that noted, the Canadian agricultural wage versus the U.S. animal worker wage was about

C$2.60/hour greater in 2018. The 2008 to 2018 average Canada-U.S. differential stood at C$3.15 greater than the U.S. rate.

Figure 54: Canadian and U.S. Agricultural Wages 2008-2018 Annual Average



Source: USDA National Agricultural Statistics Service (NASS) and Statistics Canada. Table 14-10-0064-01

Environmental Protection

Definition of Issue

Environmental regulations are developed to protect the environment and the public from pollutants that are generated from livestock operations. What types of legislation regulate farms and how do they manage pollutants on Alberta cattle operations? How are these regulations different or the same as those in the United States?

Alberta Situation

- Environmental regulation is almost exclusively a provincial matter with some regulatory authority being delegated to local municipalities. The federal government has some environmental responsibility with exclusive jurisdiction over federal lands and through national legislative programs for agriculture, fisheries and the environment (Fisheries Act and Canadian Environmental Protection Act).
- Alberta cattle operations should be aware of the statutes that govern how they operate their farm and their environmental obligations. The following pieces of legislation create the rules and obligations that cattle operations must abide by:
  - *Agricultural Operation Practices Act (AOPA)*
    - The purpose of AOPA is to ensure that the province's livestock industry can grow to meet the opportunities presented by local and world markets in an environmentally sustainable manner.
    - Administered by the National Resources Conservation Board (NRCB)
  - *Alberta Environmental Protection and Enhancement Act*

- Prohibits farm operations from releasing into the environment a substance that causes or may cause a significant adverse effect on the environment.
- This Act gives government the power to issue an environmental protection order to an individual responsible for the release of an offensive odour, however, these powers do not apply to offensive odours that result from an agricultural operation that is carried on in accordance with generally accepted practices for that operation.

– *Public Health Act*
- Allows a regional health authority, if it has reasonable and probable grounds to believe that a nuisance exists, to enter onto property to inspect the property take samples of any substance or equipment being used and performs tests at the property. The PHA defines "nuisance" as a condition that is or might become injurious or dangerous to the public health, or that might hinder in any manner the prevention or suppression of disease.

– *Animal Health Act*
- Enables the province to respond to animal disease affecting animal health, public health, and food safety.

– *Water Act*
- A farm operator building a new livestock operation may require either a water approval or a water license to divert water under the *Water Act*.

– *Fisheries Act*
- Livestock operations would be found to have had committed an offence under the *Fisheries Act* when he/she spreads manure on land, located near a stream frequented by fish and the manure migrates into the stream in sufficient quantities to have deleterious effect.

- Part 1 of the *Agricultural Operation Practices Act* states that as long the agricultural operator does not contravene:
  – the *land use bylaw of the respective region,*
  – *the regulations or an approval,*
  – *the generally* accepted agricultural practice

  the operator is not liable to any person in an action in nuisance resulting from the agricultural operation and cannot be prevented by injunction or other order of a court because it causes or creates a nuisance. This is a very important piece of legislation that protects livestock operations from individuals of the public that may feel impacted by actions of a farm. This is often referred to as "right to farm" legislation.
- The NRCB has the ultimate review and approval authority and its decisions are subject to limited judicial law.

United States Situation

- As in Canada, the regulation of environmental issues occurs at several different levels.
- The Environmental Protection Agency (EPA) overseas the Clean Water Act which has a number of considerations for animal feeding operations in agriculture including the National Pollutant Discharge Elimination System (NPDES) and Effluent Limitation Guidelines (ELG).
- The EPA is also responsible for dealing with concentrated animal feeding operations (CAFO) under the NPDES permitting program. Those operations that are too small to classify as a CAFO (1,000 head of beef cattle; 2,500 pigs; and 750 dairy cattle) are the responsibility of the USDA's Natural Resources Conservation Service (NRCS). The NRCS uses non-regulatory incentives to motivate appropriate behaviour.

Clean Water Act

- Prohibits anybody from discharging "pollutants", includes animal waste, through a "point source", such as a concentrated animal feeding operation, into a "water of the United States" unless they have NPDES permit.
- The NPDES permit requires implementation of comprehensive nutrient management plans (CNMP) for the animal operation. CNMP's include handling, storage, and application of manure, feed management, land management, record keeping, and other options for manure use.
- Provides federal foundation for regulating discharges from livestock operations.

Nebraska

- New animal feeding operations and existing operations planning to expand or construct additional livestock facilities must first request an initial inspection by the Livestock Waste Control Program prior to starting construction. A farm operation must receive a Construction and an Operating Permit before they can proceed with their expansion.
- Does not impose location restrictions or other measures as a means of controlling odours or other nuisance concerns. Their focus is primarily on water quality.

Texas

- Requires a manure management plan as part of the state livestock operation permit requirement. Texas imposes restrictions on livestock operations to control odour and other nuisance concerns of neighbours.
- There may be competitive disadvantages for some regions for some specific activities but will vary regardless of whether you live in Canada or the US.
- US industry sources have reported that they feel "stymied by a myriad of new laws and regulations in the US" and are looking to Canada and Mexico for new growth opportunities.

Similarities Between Canada and US

- **Permitting** – a permit is required for constructing and/or operating a livestock operation of a particular size.
- **Nutrient Management Plans** – Alberta has manure and nutrient application regulations which are part of AOPA which ensure that management decisions meet regulatory requirements. In Nebraska, Comprehensive Nutrient Management Plans (CNMP) are utilized to meet Nebraska Department of Environmental Quality (NDEQ) regulations and other federal, state, and local requirements.
- **Setback Requirements** – setbacks are required in both Canada and the US. Setbacks are often based on minimum distances from property lines, other structures, or other livestock operations.
- **Public Information and Public Notice Requirements** – some jurisdictions require notice to adjacent property owners and public meetings before a livestock operation can be constructed. In the case of Alberta, the NRCB is committed to being transparent with the public and sends out public notices to areas that may be impacted by a proposed construction. State governments, such as Nebraska, Kansas, and Texas also make an effort to notify the public of any construction or expansion of livestock operations.
- **Financial Guarantees** – some states and provinces require that confined feeding operations establish some sort of financial guarantee or bond that can be used as a waste liability account. This financial guarantee can then be utilized in the case a farm operation cannot ensure the proper closure of manure collection or storage facilities.
- **Technical Assistance** – government programs and assistance are typically provided to producers to provide advice and technical support to minimize the farm's impact on the environment.

Comparative Impact

There is significant complexity when it comes to comparing environmental regulations as the costs of complying with these regulations vary not only by jurisdiction but within each region by size and nature of the operation itself. Compliance costs would be significantly higher in areas where there is significant environmental risk such as in areas with highly erodible land, near water bodies, or near high concentrations of livestock operations.

There is little to no evidence of livestock operations making siting decisions based on environmental regulation in Canada or the US. Other more important criteria, such as proximity to feed sources and processors, distance to markets, climate, and political environment are usually considered most seriously when making decisions for future plans, though of course environmental regulation, if overly restrictive, could also factor into decisions about location.

Within Canada, there is variance in environmental regulations as the provinces and municipalities are primarily responsible for regulating farms with respect to impacts on the environment.

Conclusion

There may be slight differences in environmental regulations between municipalities or jurisdictions, but these differences will not provide a distinct competitive advantage for either country as a whole. Rather, these advantages may exist between each specific jurisdiction and will differ depending on the jurisdictions being assessed.

The types of regulations that are legislated can generally be categorized into several categories such as nutrient management, setback requirements, etc. Although each jurisdiction has regulations that fit under different categories, the specifics of these regulations may differ.

Overall, there is no substantial competitive advantage provided to either country as a result of differences in environmental regulations.

Species at Risk

Definition of Issue

There are several endangered species that exist within Alberta and the government has taken actions to protect these endangered species. However, these actions could consequently impact ranchers. What types of impacts have provisions protecting species at risk had on local livestock producers? Might these provisions impact the competitiveness of these livestock producers? Are there similar provisions regulating livestock producers in the US?

Alberta Situation

- The Alberta Provincial Government enacted an Emergency Protection Order to protect the endangered Greater Sage-Grouse.
- An Emergency Protection Order, the Species at Risk Act, was implemented in south-eastern Alberta in February 2014 in order to protect the Greater Sage-Grouse. This Protection Order prevents construction in particular areas and restricts noise during the bird's mating season. Issuance of the protection order has worried area stakeholders including producers that graze their animals on public lands (federal or provincial crown lands).
- The following are actions that are prohibited under the emergency order for the protection of the Greater Sage-Grouse
  - Killing sagebrush plants, native grasses or native forbs in a legal subdivision or road allowance
  - Moving sagebrush plants, native grasses or native forbs
  - Installing or constructing a fence
  - Installing or constructing a structure or machine that produces noise that exceeds a certain decibel limit for a specified daily duration
  - Constructing a new road or widening existing roads
  - Installing or constructing a structure greater than 1.2 meters in height.
- The prohibitions contained in the Emergency Order (2014) only apply to habitat on federal and provincial crown lands in south-eastern Alberta and south-western Saskatchewan. Grazing will not be regulated by the Emergency Order. In areas where grazing can be modified to improve Greater Sage-Grouse habitat, the government has provided incentives for voluntary stewardship measures.

- Agricultural operations could incur minimal incremental costs in that they will be restricted when building new fences for the purpose of managing grazing on provincial crown lands in the area subject to the Order. New fences will need to be Sage-Grouse friendly fences.
- Some of the industry players that have been impacted by the Emergency Protection Order describe moving around on these lands as "walking on pins and needles" as they need to be very careful that they are not impacting the Sage-Grouse's habitat.

United States Situation

- The US Fish and Wildlife Service have the authority to list a species as either endangered or threatened under the Endangered Species Act (ESA).
- Currently, Sage-Grouse is under consideration of being added to the ESA because of declining populations in the US. If the Sage-Grouse was included, it would affect landowners in 11 Western states. There are producers that are considerably worried about the status of the Sage-Grouse changing from "proposed threatened" to "endangered" as this would have substantial impacts to farms and ranches. One US rancher says that if they changed the status of the Sage-Grouse he would have to eliminate his predatory control measures he uses to protect his sheep. It is these same management practices that help protect the livelihood of the Sage-Grouse.
- There have recently been proposed amendments to the Endangered Species Act which would increase state and local input and improve transparency in the listing process. Revisions that were brought forward by the Fish and Wildlife Service and the National Oceanic Atmospheric Administration would eliminate provisions that automatically give threatened species the same protections as endangered species.
- The ESA protects endangered and threatened species and their habitats by prohibiting the "take" of listed animals. "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct".

Comparative Impact

The Greater Sage-Grouse is classified as endangered in Canada by the federal *Species at Risk Act* (SARA). In the US, the Sage-Grouse is not currently included under the ESA, however, there were significant concerns that it's status would change to threatened.

It does not appear that cattle ranchers have been significantly impacted by the provisions established by the Emergency Protection Order to protect the Greater Sage-Grouse. Ranchers that need repair or replace existing fencing may be slightly impacted by Emergency Protection Order. It is also reasonable to believe that ranchers in the affected areas are pressured to be more careful when roaming in specific areas doing their best to reduce the impact they may have on the Sage-Grouse's habitat.

Overall, there doesn't appear to be a major competitive advantage for Canada or the US with regards to species at risk. There is a chance that livestock operations could be impacted, however, this is a risk that both Canadian and American ranchers must equally face and will largely depend on geography, populations and status of natural habitat.

SRM Removal

Definition of Issue

Specified Risk Material (SRM) removal and disposal has historically been an important regulatory issue that has created a competitive disadvantage for the Canadian beef supply chain. Does this regulatory issue remain to be a competitive hinderance to the Canadian beef supply chain? What actions have been taken to minimize this disadvantage?

Alberta Situation

- On July 12, 2007, enhanced animal health safeguards came into effect to help eliminate bovine spongiform encephalopathy (BSE) from Canada.
- It is legislated in Canada that all SRM be removed from all cattle slaughtered for human consumption. SRM must also be collected, stored, and handled separately from all other animal material in a processing plant.
- Currently, over 90% of total SRM is being confined in Canadian landfills with no conversion into valuable product. This results in increases costs to cattlemen and a decrease in international competitiveness.
- The Canadian Meat Council has been attempting to harmonize SRM disposal and removal regulations between Canada and the US.

Canada is currently recognized as a controlled BSE risk country. This means that they are recognized as having a zone with a controlled BSE risk and can have implications of trade restrictions or hindrances

United States Situation

- US processors have used some SRM's in products such as fertilizer, providing further value for each carcass processed.
- According to Canfax Research Services, SRM's from one animal can be over 50 kgs. In Canada, all of this must be removed or disposed from cattle that are over-thirty-months (OTM). Alternatively, 0.22 kgs is disposed of in the US.
- The US is currently recognized as a negligible BSE risk country.

Comparative Impact

- A report constructed to serve as the summary of discussions held at the International Discussion on Specified Risk Materials hosted by the Alberta Prion Research Institute indicated that the differential cost of the more-stringent SRM removal and disposal regulations in Canada is estimated at $30 per head in excess of US of costs. This continues to be a competitiveness burden for the Canadian industry.

- The 2007 Feed Ban Cost Survey by the Canadian Meat Council shows that the average cost of complying with the feed ban regulation in Canada is increased disposal cost of $12.41/head on OTM cattle.
- This is an important competitive factor that has historically given the US a competitive advantage. There is a strong argument for the harmonization of these regulations as this difference is clearly not a food safety issue as we see US processed beef entering Canada daily.

Antimicrobial Products

Definition of Issue

Canada and the US have different regulatory bodies that separately approve the use of vaccines, antimicrobials, and performance enhancers. As a result, veterinary biologics can be approved at different times and/or under different conditions.

Is there currently an advantage granted to either country with respect to access or use of various veterinary biologics?

Alberta Situation

- Based on the discussions that we had with cow/calf producers, feedlot operators, and industry veterinarians, there currently aren't any significant differences between the types of veterinary biologics that can be used in Canada or the US.
- Historically, this has been a competitive issue between Canada and the US. For example, the use of Draxxin, a bovine respiratory disease treatment, was first approved in the US in 2005 and not until August 2006 in Canada. Industry members indicated that the use of Draxxin could provide a benefit of approximately $20 per head. In this case, the US held a significant competitive advantage on Canada for a while because they had earlier access to the drug.
- Zilmax is another example of earlier approval of a veterinary drug in the US. Zilmax is a feed supplement that allows cattle to be more efficient at converting feed into weight. It was approved by the FDA in 2016 and by Health Canada in 2009.
- In Canada, vaccines are approved by the Canadian Food Inspection Agency (CFIA) and pharmaceuticals are approved by Health Canada under the authority of the Food and Drugs Act and Food and Drug Regulations.
- There are different allowances for how generic veterinary drugs are used compared to the brand name drugs. Generics, which are less expensive, can be used in feed only with script and so a single dosage is allowed. Brand name drugs, however, can be used at a range of doses.

United States Situation

- In the US, vaccines are approved by the United States Department of Agriculture (USDA) and pharmaceuticals are approved by the Center for Veterinary Medicine (CVM) within the Federal Drug Administration (FDA).

- The use of independent review and approval systems for veterinary drug submissions has also resulted in some differences in withdrawal times and/or dosages.
- Examples of differences in withdrawal times that are creating logistical difficulties for exporters of fat cattle are:
  - Oxytetracyline – seven to nine-day withdrawal time in Canada and zero in US. This long withdrawal time incentivizes producers to use more expensive liver abscess drugs that cost more to avoid the los marketing opportunities of 7 to 9-day withdrawal time.
  - MGA – 24-hour withdrawal time in Canada and zero in the US. Heifers off of MGA for 24 hours will being to show signs of heat, resulting in significantly reduced meat quality.

Comparative Impact

- Previous assessments indicated that Canada lags behind the US for approvals of animal pharmaceuticals by 5-7 years.
- In 2004, the George Morris Centre completed a study that compared the regulatory system for food animal and companion animal product approvals for Australia, Canada, the EU and the US. The study found significant differences in the feeds charged by regulators, with Canada charging the highest. The total time for a decision to be made by regulators was also the slowest in Canada.
- Differing withdrawal times can have an impact on cattle and cattle operations by delaying shipments and creating logistical issues on-farm. Exporters have had scenarios of attempting to isolate animals and errors being discovered during which the whole pen was devalued, ultimately costing the owner thousands of dollars.
- Given the extensive trade of meat between Canada and the US, there no human or animal health rationale to have varying regulations related to withdrawal times, dosage or approved medications.
- A report conducted by the NCFA (2016) indicated that drug harmonization barriers are directly costing the Canadian beef industry $89.9 million per year. In addition, lack of competitive access to veterinary drugs creates a cost disadvantage for Canada's industry of about $15 per head. It is estimated that these additional costs result in over $62 million per year in reduced output.

Conclusion

The US leads the charge with respect to the approval new veterinary drugs and Canada is usually the one catching up. This has created a competitive advantage for producers in the past and continues to be something the Canadian industry faces to this day. Differences in withdrawal times and dosage are also acting as trade hinderances as they complicate the export process and cause logistical issues on-farm on and in the supply chain.

Canada and the US are working together through the Canada-United States Regulatory Cooperation Council (RCC). The objective of the Veterinary Drugs stream

of the RCC is to coordinate respective submissions and review processes for veterinary drug applications to enable simultaneous product reviews with a view to simultaneous product availability.

It is important that industry continue to support initiatives under the RCC to improve harmonization and simultaneous reviews and submissions. It is equally important that it communicate these issues to government to ensure commitment and support of such initiatives.

Transportation Infrastructure

Definition of Issue

Roads, bridges and other transportation infrastructure are key elements for transporting agricultural goods in and of out of livestock intensive areas. Is transportation infrastructure in Alberta limiting livestock producers from conducting their day-to-day business and negatively impacting the industry?

Alberta Situation

- Roads are the major cost of rural municipalities, representing about half of outlays.
- Lethbridge County spends a great deal on maintaining their roads. The concentration of intensive livestock operations in the County largely drives the cost of maintaining roads. Roads are heavily travelled by grain trucks, manure trucks, and cattle liners carrying livestock. This frequent traffic can damage the roads requiring frequent maintenance.
- Lethbridge County instituted a head tax on confined feeding operations in the region to help the county pay for crumbling infrastructure, including roads and bridges. The head tax will be further discussed in later sections.
- Canadian feedlots require large quantities of barley to finish cattle. Feedlot feed requirements exceed the crop production of the county which means that a vast majority of the feed needs to be imported from outside the County.
- The ground freezes in many parts of Canada during the winter. Once the ground starts to thaw in the spring, the ground can become soft. Road bans are put in place on specific roads to prevent them from being significantly damaged during spring thaw.
- Road bans can impact the cost of transporting grain or livestock on and off farms and feedlots because alternative, less-direct routes must be taken increasing the amount of time in transport. Depending on location, these alternate routes can significantly impact travel times.

United States Situation

- Cattle producing regions in the US (Nebraska, Kansas, Texas, etc.) typically have more moderate climates compared to Canada. Some places in Nebraska have comparable climates to those experienced in Southern Alberta. Generally speaking, the US has a more moderate climate compared to Canada and will therefore less frequently experience the impacts of road bans.

Comparative Impact

Having damaged or poorly maintained transportation infrastructure can significantly impact the economic activity of a region, especially in industries that rely heavily on transportation. Road bans and poor roads can increase the cost of transporting grain, manure, or livestock for periods of the year. However, these impacts are relatively small and wouldn't constitute a major competitive advantage for either country as a whole. There are beef producing regions in the US that experience similar climatic conditions to that of Canada and will face similar issues with cold temperatures.

Well maintained and functioning transportation infrastructure is key to the success of the livestock industry to move grain, livestock, and manure to and from farm locations, however, the extent to which this may provide an advantage or disadvantage with respect to competitiveness is likely limited. Climatic conditions can have significant impacts on the condition of roads and bridges and can affect transportation costs, however these impacts are likely to be felt on both sides of the border depending on the specific region that is being assessed.

Amendments to Health of Animals Regulations

Canada is a vast country, but this size also makes it particularly vulnerable to changes in transportation regulations. The agriculture industry depends heavily on the transportation sector to move grains, oilseeds, and livestock. For example, calves are often moved from ranches to other ranches, backgrounders, or feedlots and eventually to processing plants. Often, substantial distances need to be travelled in order to move cattle to these supply chain stakeholders. As previously mentioned, the meat packing plants are distantly located from major population centers, as compared to in the US, again placing more importance on transportation. Transporters are a key cog in the Canadian livestock sector. Recently, the Canadian Food Inspection Agency (CFIA) made changes to the Transportation of Animals requirements under the *Health of Animals Regulations* with the intent to improve the well-being of animals during the entire transportation process.

The reason for the amendments to the *Health of Animals Regulations* (HAR) is that the regulations dealing with the transportation of animals do not reflect current science regarding the care and handling of animals; do not align with the standard of Canada's international trading partners; and are not aligned with the World Organization for Animal Health (OIE) welfare standards for animals transported by land, air, and sea.

The previous regulations were broad and written in general terms. For example, more specificity would provide greater clarity on whether an animal could be transported or not. Several definitions were extended and/or clarified. Some of the newly defined definitions include "compromised" and "unfit". Definitions for both will clarify whether an animal could be transported with special measures or not transported, unless it is to receive veterinary care and in accordance with certain requirements.

The aim of the amendments is to outline provisions that would provide clear standards of conduct for related parties including:

- Knowledge, skills, and training
- Risk factors and contingency planning
- Monitoring
- Animal handling
- Loading density and overcrowding
- Isolation
- Container or conveyance requirements
- Condition, maintenance, and use of conveyances
- Feed, water, and rest for animals

The amendment prohibits leaving an animal at a processing plant or assembly center unless the person who transported the animal provides the consignee with a written notice that the animal has arrived and a supplementary document containing information regarding the animal's condition. The consignee assumes the care of the animal as soon as they acknowledge receipt of the notice and document. The transporter is responsible until the acknowledgment is received.

Commercial carriers are required to maintain records of several different metrics, such as amount of floor space for the animals, last time the animals were fed and watered prior to loading, date, time and place of arrival, etc. Records are currently required for carriers engaged in inter-provincial or international shipment, so this change would only impact commercial carriers transporting non-livestock animals intra-provincially.

These proposed changes to the HAR will have both positive and negative impacts. Several stakeholders, including commercial carriers, abattoirs, and producers, will be impacted if the proposed amendments are legislated. Increased costs are likely to result from the proposed amendments. These include increased costs from:

- Increased frequency in stops on long hauls (max time limits without food or water)
- Training for transporting and handling animals
- Increased record-keeping

Changes to feed, water, and rest provisions were expected to be one of the most damaging amendments, however, a survey of businesses that would be potentially affected by the change indicated that 98% of current shipments would not be affected by the proposed amendment.

The Alberta Cattle Feeders' Association undertook the development of the Canadian Livestock Transport Certification Program which is a training and certification program for those working the livestock transportation industry. This allows transporters to learn the skills needed to safely transport Canadian livestock.

The CFIA conducted a cost-benefit statement of by how much the changes to the Health of Animals Regulations might impact industry. Their conclusion was that the cost of all impacts would increase costs for the industry by $556,217 per year or $444 per business per year.

Changes to Transportation Regulations

Definition of Issue

In 2018, the Alberta Provincial Government made changes to the commercial vehicle drivers licensing process. The intention of these changes is to make Alberta's roads safer and create more skilled drivers in trucking industry. However, could these changes create a competitive disadvantage for Alberta compared to other provinces or the US?

Alberta Situation

- Sweeping changes have been made to the commercial licensing process in Alberta. These changes include:
  - Absorbing all privately owned and operated driver's examiner's corporations into the public sector.
  - Restructuring the application process for those seeking to attain their commercial driver's license (Class 1).
  - Mandatory safety and compliance course and knowledge test for commercial carriers before beginning operations.
- A Class 1 license allows drivers to drive semi-tractor trailers – the most commonly used machinery to transport livestock and other agricultural commodities.
- Starting March 1, 2019, all new drivers in Alberta seeking their Class 1 and 2 licenses will have to take a mandatory entry level training (MELT) course.
- Mandatory as part of the MELT course is at least 113 hours of training. The time breakdown is as follows - Classroom (40.5 hours), in-yard training (15.5 hours), and on-road training (57 hours).
- Mandatory training requirements will make it more difficult and costlier for individuals and corporations to license themselves or employees with a Class 1 license. The government has a set a cap of $10,000 for the Class 1 MELT.
- It is believed among industry members that the cost of the MELT program will range from $8,000 to $10,000 for each person.

Other Canadian Provinces

- Each province has their own set of requirements for attaining their commercial driver's license.
- Currently only Alberta, Saskatchewan, and Ontario require mandatory entry level testing for those seeking to attain their commercial driver's license. An exemption is being given to farmers looking to attain their commercial driver's license in Saskatchewan. These drivers will need to obtain an "F" endorsement to drive commercial vehicles for farming operations.
- Many other provinces are currently in the process of consulting with industry and assessing options to determine whether they will require mandatory entry level training.
- Canada is already facing driver shortages. This shortage is expected to balloon over the next decade. One report by CPCS expects the supply demand gap to increase to 34,000 drivers by 2024.

- The Conference Board of Canada also expects major driver shortages in the near future. This shortage results from the fact that there are more drivers retiring than entering the industry and increasing demand from industries that rely on trucking services. The report that was written in 2013 estimated that the driver supply demand gap would be 25,000 by 2020.

United States Situation

- The American Trucking Associations (ATA) estimate the driver shortage in the US to be between 35,000 and 40,000.
- The US trucking industry is struggling with many of the same challenges as the Canadian trucking industry. These include more drivers retiring than those entering the industry, increasing demand for trucking services, and lifestyle.
- The ATA estimates that the driver shortage could become as large as 175,000 drivers by the year 2024.
- In some states in the US, it is required that individuals complete commercial driver license training prior to testing.

Comparative Impact

It is anticipated that there will be a shortage of 175,000 drivers in the US by 2024 and it would be a shortage of approximately 34,000 drivers in Canada during the same timeframe. If we assume these estimates to be true and normalize them according to the size of the economy, the driver shortage is expected to be comparatively much worse for Canada than it will be for the United States, since the American economy is approximately 11 times larger than the Canadian economy.

The Canadian trucking industry faces some serious anticipated risks with regards to finding enough truck drivers to meet demand. Canada is expected to be at least as worse off as the US in terms of the supply and demand gap for truck drivers. Additional regulations will further restrict the supply of truck drivers in Canada. Industries that rely on transportation of goods and services, including agriculture, could be greatly impacted by this shortage soon.

Comparative Impact on Feeding Sector

As noted, the main premise of this report is that the industry is and has been competitive. Within that overall context, the concern is that in recent years, there have been added costs and regulatory measures imposed on the industry from the three levels of government. The best way to quantify the significance of this concern is by looking at Alberta and U.S. cattle feeding costs. This sector is most illustrative because of the strong similarities between the sectors in Alberta and the U.S. Conversely given the wide diversity of cow-calf operations in Canada and the United States, that comparison would be less instructive. Furthermore, while the packers are similar between Alberta and the U.S., the costing structures are opaquer. The main point of this exercise is to provide an example of the impact of added costs, and the feeding sector is best suited to that purpose.

As noted in the Cost Competitiveness section, feed costs are nearly three quarters of the total operating costs for cattle feeders. Stripping away feed costs as well as other factors related to marketing and animal health which have been discussed in detail elsewhere, gets to the operational aspects that are impacted by local costs and governments. These include labour, utilities, fuel, taxes, insurance and other supplies. These are often captured in cattle feeding budgets as yardage fees or overhead. These costs are relatively small compared to the feed and feeder cattle costs but in a competitive narrow margin business, they can be critical. These costs at the feeder level can be approximated based on an assessment of the Canfax budgets as well as budgets produced by Iowa and Kansas State Universities. This assessment is also aided and informed by insights from Alberta cattle feeders. Finally, these cost comparisons can also be augmented with the regulatory, labour, tax and energy data presented throughout this report.

Based on that compilation, a starting point of comparison for these costs would be about C$70-74/head in Alberta, on yearlings. That total does not include recent changes in workers compensation, the head tax or the carbon tax. Of that total about half is labour. In the U.S. the three leading states would have costs for these items in the US$60-65 range. On a par currency basis, the $10 differential is comprised of the labour, tax and other factors itemized in the report above, but again, prior to the new added cost factors. Of course, the current exchange rate is not par and the depreciated C$ conversion to US$ provides the Canadian feeder with a cost advantage in U.S. dollars. With that acknowledged, based on the assessment of the recent added costs of the carbon tax, Workers Compensation, added statutory holidays, the Lethbridge head tax and other labour regulations, there is an added $5-6/head on top of that differential. This could put the disadvantage at $15/head or more in Alberta versus the three leading states.

Many of the individual cost factor impacts that are unique to Alberta are difficult to quantify accurately given that they will vary over time, between individual operations, and with general market factors such as exchange rate. The largest individual differences are likely to continue to be in labour, fuel and taxes. The bottom line is that added costs in a margin business are going to be bid into the cost of feeder cattle. That is, the price of feeder cattle is going to be lower as a result of these added costs. Conversely, as noted above, the long-term margins in the industry are near breakeven. If the added costs are not taken out of feeder cattle, they translate into losses and downsizing of the feeding industry.

Competitiveness Summary

Overview

The Alberta beef industry has sales of about $5.7 billion dollars at the packing level and $5 billion at the farm level. Based on the beef sales and Statistics Canada industry multipliers, the Alberta beef industry generates approximately $18 billion in total economic activity. In addition to over 6,000 direct jobs generated by the beef industry, it creates over 57,000 jobs indirectly on the farms and all the suppliers across Canada. Direct labor income generated in Alberta amounts to about $520 million. Total labor income for suppliers and farmers across Canada amounts to $2.6 billion.

Data on production and trade shows that the Alberta industry was generally competitive over the past decade, which suggests that the industry remains capable of being competitive into the future. However, there are several cost factors that are out of line and some trends that could cause decreasing competitiveness if they continue.

Through conversations with the various sectors of the beef supply chain, and based on our quantitative analyses of the industry sectors, this report reaches the following general conclusions:

- Overall, the three states and Alberta have more similarities than differences as part of a North American cattle and beef industry structure.
- There are few significant differences between Nebraska, Kansas, and Texas in most aspects including cattle types, production, regulatory and business environment, supply chain structure, and presence of the same large packing companies. The most significant differences are in feed types and marketing patterns.
- Broadly speaking, these comparisons hold true when adding Alberta into the comparison. All four are in the Great Plains, with similar open-air cow-calf and feedlot operation styles as a result. Despite the many similarities, our focus was on finding and explaining the outcomes of those differences.
- The data on trade, costing and revenues indicates that the Alberta beef industry has been competitive overall with key counterparts in the United States. However, the beef industry has historically been a very narrow margin business, so the competitiveness balance has been and remains tenuous or fragile.
- Opportunities in field crop production are a significant factor amongst others that have led to a recent lack of expansion in Alberta's cow herd despite otherwise positive market signals.
- Recent changes in federal and provincial regulations and taxes have begun to put the Alberta industry at a competitive disadvantage, especially during times when the feed price spread is not in Alberta's favour. These factors must be addressed to avoid a downsizing and erosion of this very important industry.

Key Competitiveness Issues

Competitiveness is defined as the ability to profitably maintain or enhance market share. By most measures and in the long run, the Alberta beef industry seems to be maintaining and enhancing market share. The only exceptions to this are some recent impacts of feed costs and a downward indicator being feedlot capacity erosion since 2003.

Another area of loss and concern is relative size of cow herd. In 2008, Alberta was 23% of the herd for the three comparator states of Nebraska, Kansas, and Texas together. In 2018, the Alberta herd of 1.5 million head is only 19.2% of the three-state total. Other areas where there

- For most of the year, the return on most beef items for packers is less in Canada than the US. On average, the return by AB packing industry will be $20-25/head behind the US.
- There is a feeling amongst stakeholders consulted that there is a risk of someday losing processing capacity. Individuals were concerned about this potential erosion of processing capacity and felt that the industry should consider ways to diversify and focus on premium markets.
- Most stakeholders acknowledged the reality that the winter climate in AB will always have an unavoidable impact on feed and fuel costs. But relative feed costs are also one of the most variable factors from a competitiveness perspective.
- Most important cost, other than the cost of the cattle, for the feeding industry is feed, at approximately 70% of all operating costs. One of the key competitiveness benchmarks is therefore the relative feed price spread between regions.
- The competitive disadvantage from negative spreads between US corn and Canadian barley is recent, starting only in late 2017. The decreasing availability of feed barley is largely due to two factors: declining acreage share of barley, and several years of lower yields. Will greater feed wheat/corn availability and increased barley acreage driven by higher prices combine to reverse this trend?
- The labour cost differential is significant and the spread is increasing (Canadian agricultural wages increased 3.5% over past decade, with inflation at 1.6%). The US has both lower starting labour rates and a lower rate of increase. In addition, the Canadian processing sector appears to have more difficulty attracting sufficient labour.
- There are a number of smaller cost components where the Alberta or Canadian beef industry is at a competitive disadvantage to their US counterparts. Those smaller components, when taken in totality, can add up to significant additional costs. These smaller cost components include:
  - Higher cost of diesel fuel generally
  - The cost of fuel is exacerbated in Canada by carbon pricing
  - Ancillary labour costs for occupational health & safety and Workers Compensation Board costs

- Head tax in Lethbridge County
- Differential pricing for herbicide products
- CFIA ear-tags with low retention rates are causing difficulties for some growers
- Lower access to veterinary resources and higher cost, given change in geography and structure of Alberta's cow herd

Regulatory Issues

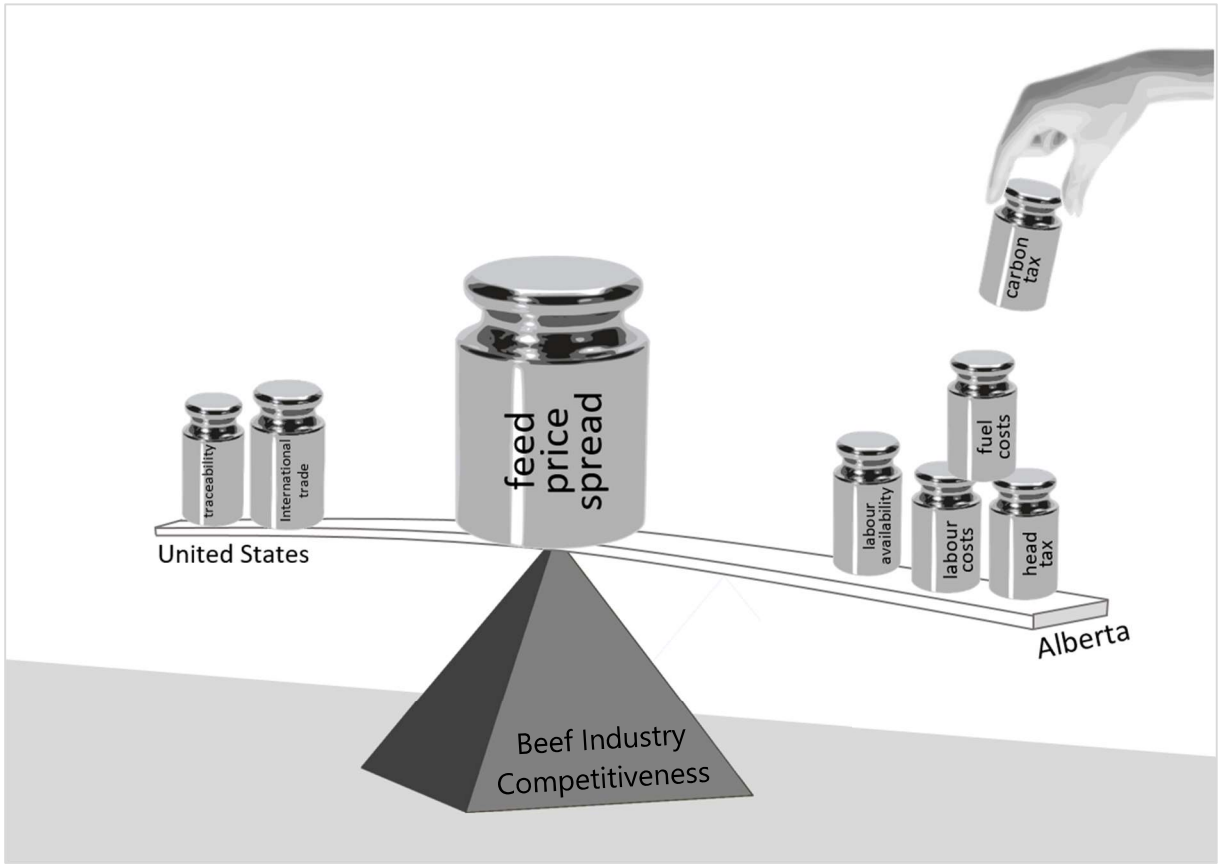
Many of the smaller cost components that reduce competitiveness are linked to regulatory burdens. Key areas of concern with regulatory vehicles include the following:

- Labour issues are both top of mind and significant recent cost drivers, as much as several dollars per head. OH&S requirements, temporary foreign workers, and holiday pay are of greatest concern, especially for feedlot operators.
- Growers reported already having good packages in place for their employees, including insurance that became more expensive with WCB requirement; these ancillary labour costs are less of an issue for the states.
- Carbon tax is also of concern to most informants, especially since AB fuel costs are already significantly higher before the new tax regime was implemented.
- Transport capacity and cost will become significant as transportation regulations change due to animal welfare concerns; anticipate higher relative impact in Canada.
- Various supply chain stakeholders feel that lobby efforts for beef in the US have been more effective than in Canada, point to the new Food Guide as an example of beef industry losing support.

Future Competitiveness

Canada's regulatory environment does also have many positive aspects and could be leveraged to find premium markets for Alberta beef. Both food safety and the sustainability could be emphasized in finding those types of markets, maintaining and improving the industry's competitiveness into the future:

- Canada is already strong on traceability and food safety and gaining strength in sustainability efforts. But focus on disease preparedness is needed for risk reduction.
- Trade agreements, including TPP, will present opportunities for getting established in new markets, hopefully to the point where processing capacity becomes the limiting factor.
- Stakeholders interviewed felt that future competitiveness will rely on finding areas of opportunity in all supply chain sectors: efficiencies, diversification, new market access, and cost reduction.



Conclusion

The figure above shows the overall conclusion to be drawn from this study. The beef industry has been very low margin historically, with the feed price spread between Alberta and the United States being an often-overwhelming factor in relative competitiveness. At times when feed pricing does not fall in Alberta's favour, the Alberta beef industry's disadvantages in numerous regulatory and taxation issues can easily tip the competitiveness balance in favour of the U.S. states.

The data on trade, costing and revenues indicates that the Alberta beef industry has been competitive overall with the key counterparts in the United States. However, the beef industry has historically been a very narrow margin business, so the competitiveness balance has been and remains tenuous or fragile.

Recent changes in federal and provincial regulations and taxes have begun to put the Alberta industry at a competitive disadvantage, especially during times when the feed price spread is not in Alberta's favour. These factors must be addressed to avoid a downsizing and erosion of this very important industry.

Appendix: Statutes and Regulations

These links are provided as a quick reference, with all links being to the current version at the time the reader references the link on the internet.

Canadian Statutes & Regulations

Canadian Environmental Protection Act, 1999, SC 1999, c 33

Criminal Code, RSC 1985, c C-46

Consumer Packaging and Labelling Act, RSC 1985, c C-38
- Consumer Packaging and Labelling Regulations, CRC, c 417

Feeds Act, RSC 1985, c F-9
- Feeds Regulations, 1983, SOR/83-593

Fisheries Act, RSC 1985, c F-14

Food and Drugs Act, RSC 1985, c F-27
- Food and Drug Regulations, CRC, c 870

Health of Animals Act, SC 1990, c 21
- Health of Animals Regulations, CRC, c 296

Meat Inspection Act, RSC 1985, c 25 (1st Supp)
- Meat Inspection Regulations, 1990, SOR/90-288

Safe Food for Canadians Act, SC 2012, c 24
- Safe Food for Canadians Regulations, SOR/2018-108

Species at Risk Act, SC 2002, c 29
- Emergency Order for the Protection of the Greater Sage-Grouse, SOR/2013-202

Alberta Statutes & Regulations

Agricultural Operation Practices Act, RSA 2000, c A-7

Animal Health Act, SA 2007, c A-40.2
- Animal Health (General) Regulation, Alta Reg 130/2014
- Disposal of Dead Animals Regulation, Alta Reg 132/2014

Animal Protection Act, RSA 2000, c A-41
- Animal Protection Regulation, Alta Reg 203/2005

Environmental Protection and Enhancement Act, RSA 2000, c E-12
- Pesticide (Ministerial) Regulation, Alta Reg 43/1997
- Pesticide Sales, Handling, use and Application Regulation, Alta Reg 24/1997
- Substance Release Regulation, Alta Reg 124/1993
- Waste Control Regulation, Alta Reg 192/1996

Labour Relations Code, RSA 2000, c L-1

Livestock and Livestock Products Act, RSA 2000, c L-18

Livestock Identification and Commerce Act, SA 2006, c L-16.2
- Livestock Identification and Commerce General Regulation, Alta Reg 208/2008
- Livestock Identification and Commerce Delegation Regulation, Alta Reg 207/2008

Meat Inspection Act, RSA 2000, c M-9
- Meat Inspection Regulation, Alta Reg 42/2003

Occupational Health & Safety Act, RSA 2000, c O-2
- Farming and Ranching Exemption Regulation, Alta Reg 27/1995

Public Health Act, RSA 2000, c P-37

Traffic Safety Act, RSA 2000, c T-6
- Bill of Lading and Conditions of Carriage Regulation, Alta Reg 313/2002

Water Act, RSA 2000, c W-3
- Water (Ministerial) Regulation, Alta Reg 205/1998

Wildlife Act, RSA 2000, c W-10
- Wildlife Regulation, Alta Reg 143/1997

Workers' Compensation Act, RSA 2000, c W-15

Acknowledgments

Many individuals contributed their thoughts, ideas, and opinions to the development of this report, and we would like to acknowledge their contributions. Their names and organizational affiliations are not reproduced here to protect their privacy and business interests. Their identities were made known to the client's project coordinators, should further follow-up be desired.