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# Rules of Thumb and Cattle Price Relationships

## INTRODUCTION

A rule of thumb is a guide or principle based on experience or practice. Rules of Thumb can be useful in making quick decisions without having to re-calculate or check every year; particularly when they tend to hold true year after year. *Do you accept a bid? Are the terms reasonable? Do you bid higher on a group of cattle? Or which weight group of feeders is the better buy.* Rules of thumb can help evaluate the best option when time is limited. However, the cattle market has undergone significant changes in recent years and some of these rules of thumb need to be revisited and updated.

In this factsheet, some general rules of thumb regarding feeder price relationships in the U.S. and Canada are compared with historical and current data to see if trends have changed overtime. We will also look at historical price relationships between cow and trim prices, and feeder and fed prices.

## FEEDER PRICE SLIDE

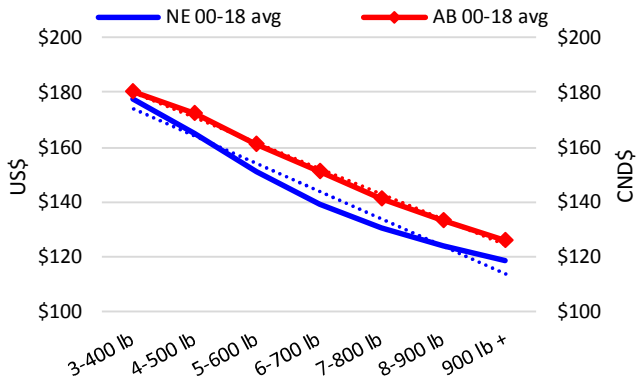
*In general, calves have a US$0.10/lb. (US$10/cwt) slide and yearlings have a US$0.06/lb. (US$6/cwt) slide*
*Source: DS Peel 2018, Feeder Cattle Price Fundamentals*

**Fact**

From 2000 to 2018 the average price slide for every hundred pounds for Alberta feeder steers was CND$11/cwt from the 4-500 lb to 5-600 lb category, and CND$8/cwt from the 7-800 lb to 8-900 lb category with significant variations from year to year. The U.S. slide was at US$13/cwt from 4-500 lb to 5-600 lb, and $7/cwt from 7-800 lb to 8-900 lb.

In both Canada and the U.S. the price slides in absolute values are wider for calves and narrower for yearlings. As shown in Chart 1, average Alberta feeder prices in 2000-2018 shows a nearly linear relationship between weight and prices, while Nebraska feeder cattle prices show a steeper slope between lightweight categories and a flatter slope for heavyweight categories. The linear relationship in Alberta prices indicates that the price slides for every hundred pound in terms of percentage (which affects the slope of the price curve) are similar across different weight categories; while a concave curve for Nebraska prices indicates a steeper slide in percentage terms for lightweight categories and a flatter slope for heavyweight categories.

**Chart 1. Average Alberta, Nebraska Feeder Steer Price at Each Weight, 2000-2018 avg.**

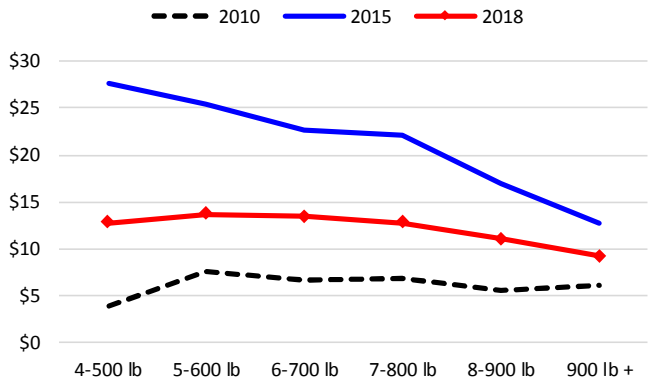



Source: Canfax, LMIC

**Price slide in absolute dollar value vs. percentage**

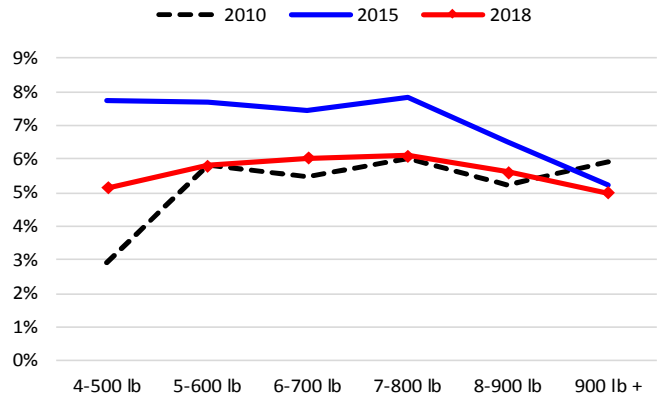
There have been significant variations in price slides over the years (Chart 2). The Alberta steer price slide from the 4-500 lb to 5-600 lb category for example, was at $8/cwt in 2010 when calf price averaged $122/cwt, $25/cwt in 2015 during the peak of calf prices at $305/cwt, then narrowed to $14/cwt in 2018 as calf prices eased lower to $223/cwt. Such variations are also apparent for other weight categories.

**Chart 2. AB Steer Price Slide in Absolute $ Value**



As the dollar values of price slides change with the level of cattle prices, the feeder price relationship between different weight categories expressed as percentage is relatively stable. As shown in the Chart 3, despite the difference in the absolute dollar values in 2010 and 2018, the price slides in percentage for most weight categories were very similar, ranging between 5-6%. This price relationship was also observed throughout the 2010-2018 period except 2014 and 2015 when the price slide ranged between 5-8% as record high cattle prices and low feed costs resulted in larger premiums on lightweight cattle. This shows that although price slides expressed in percentage appear to be more consistent over the years, it varies with feed costs.

**Chart 3. AB Steer Price Slide in Percentage**



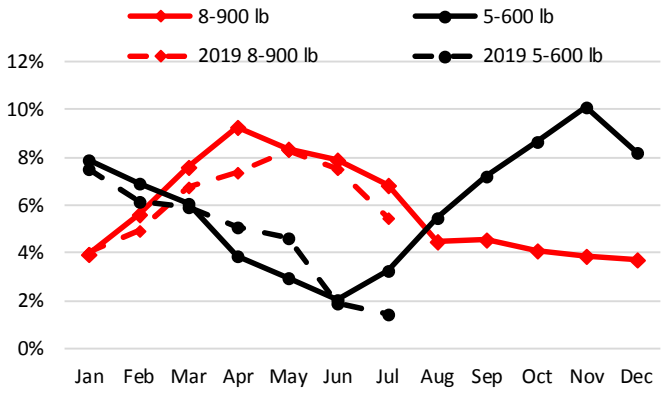

### Seasonality of price slide

In addition to the changes from year to year, the price slides also vary seasonally. The monthly average slides for Alberta steers during in the past five years (2014-2018) shows that the price slide for 550 lb steers tends to be larger in fall and winter, and smallest during the summer; while the slide for 850 lb steers tends to be the largest during spring and early summer, and stable from August through December.

This seasonal pattern in price slide is mainly driven by feeder supply and feedlot demand throughout the year and has an opposite trend to feeder price seasonality. When cattle prices are higher, the discount due to weight changes are typically smaller.

In July 2019, Alberta 5-600 steers had a 1% slide compared to 4-500 steers; while 8-900 steers were at a 5% discount to 7-800 steers. If the seasonal trend continues in the second half of the year, expect a wider price slide on the 5-600 lb steers and a narrower slide on the 8-900 lb category.

**Chart 4. Seasonality of AB Steer Price Slide by Weight, 2014-18 avg.**




Source: Canfax

## STEER-HEIFER PRICE SPREAD (S-H SPREAD)

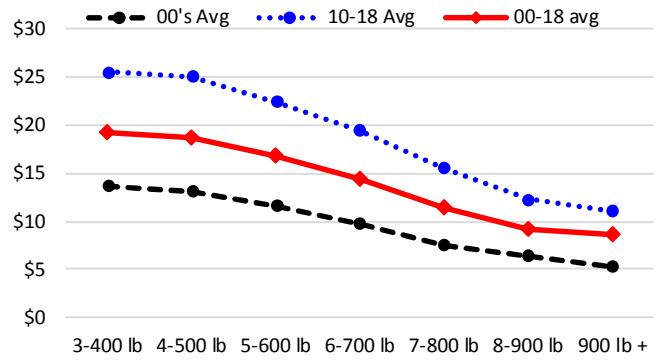
*"The pricing of feeder heifers relative to steers is often guided by rules of thumb in the industry, i.e., heifer calves are US$10 or US$15/cwt. back of the steers."*

*Source: DS Peel 2018, Feeder Cattle Price Fundamentals*

**Fact**

The overall S-H spread in Alberta averaged CND$14/cwt in Alberta and US$13/cwt in Nebraska in 2000-2018 with a wide range of variations across weight categories and throughout the years.

**Chart 5. AB Steer-Heifer Price Spread by Weight**




Source: Canfax

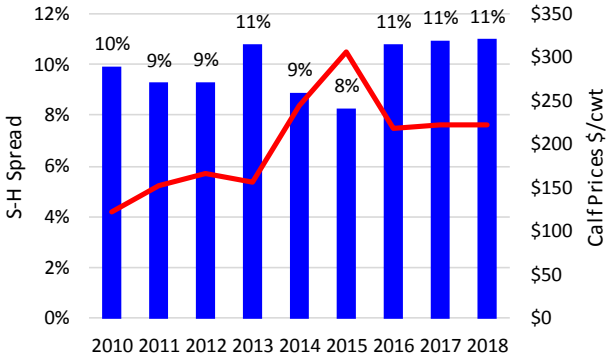
### S-H spread affected by overall price levels

Comparing 2000's and 2010's, the average Alberta feeder steers and heifer prices in the two time periods appreciated by about 56-66% across all weight categories. The average S-H spread also widened 95% from $10/cwt to $19/cwt. This again shows that the magnitude of S-H spread in dollar value varies with overall prices levels.

The average price spread was relatively steady from a percentage perspective, but remained 22% wider at 10% in the 2010's compared to 8% in the 2000's.

In general, the relatively lower feed efficiency on heifers compared to steers means higher break-even cost for feedlots. Therefore, increases in feeder prices and/or feeder costs tend to widen the S-H spread. On the other hand, increased demand for replacement heifers or tight cattle supply narrows the S-H spread. For example, the average S-H spread dropped from 10% in 2010 to 9% in 2011 and 2012 when heifer retention was up 2-7%. In 2014-15, the average S-H spread dropped from 11% to 8.5% with the tightest feeder supply.

**Chart 6. Average AB S-H Spread and Calf Prices**

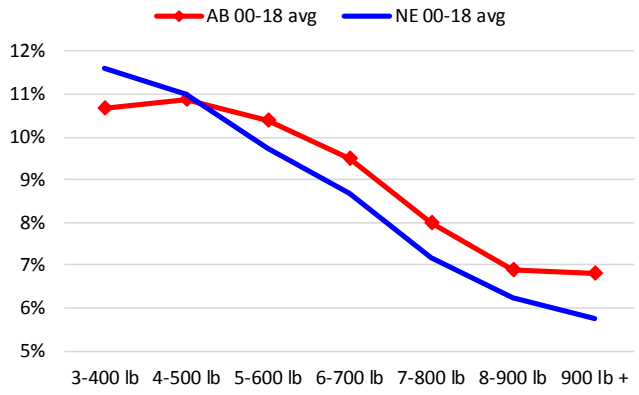



Source: Canfax

### S-H spread narrows as weight increases

As shown in Chart 7, the average S-H spread is the widest for lightweight (3-500 lb) cattle at around 11% and narrow steadily to 7% as weight increases to 8-900 lb, based on Alberta feeder prices in 2000-2018. As weight increases, the impact associated with lower feed efficiency on heifers and other production differences shrinks, resulting a narrower S-H spread.

**Chart 7. AB, NE S-H Spread by Weight**

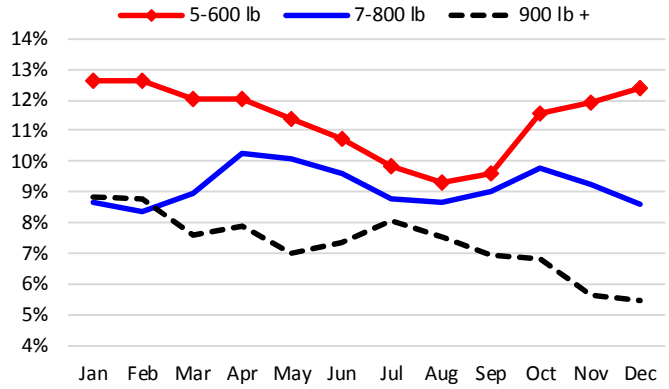



Source: Canfax, LMIC

### Seasonality of S-H spread

The S-H spread varies seasonally, and the patterns change depending on weight categories. The monthly average price slides for Alberta steers during in the past five years (2014-2018) shows that the S-H spread for 550 lb cattle ranging between 9-13% tends to decline from the peak in the beginning of the year to a low in late summer, and widen in the fourth quarter. The S-H spread for the 750 lb category shows a narrowing range between 8-10% with peaks in March-April and October-November. The S-H spread for the 850 lb category ranged between 5-9% with a generally downtrend from January to December.

**Chart 8. Seasonality of AB S-H Spread 2014-18 avg.**




Source: Canfax

## CALF AND BREEDING STOCK PRICES

*"Multiply the price of a steer calf times two, and that is the price you can afford to pay for cow."*
*Source: Bridger Feuz, Rancher Rules of Thumb*

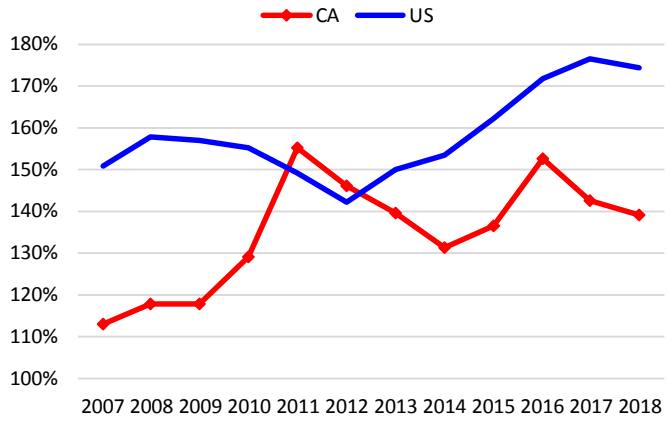
**Fact**

Bred cow price ranged between 1.1-1.5 times the price of a 550 lb steer calf in Canada and 1.5-1.8 times in the U.S. during 2007 to 2018.

As shown in Chart 9, the bred cow to calf price ratio saw opposite trends in the U.S. and Canada during 2007-2014. The downward-slope price ratio in the U.S. during 2008-2012 indicates that bred cow prices were weak relative to calf prices (calf prices were up 40% during the period, while bred cow prices were up 32%). Limited feeds due to the prolonged drought in major cattle producing states resulted in liquidation and weak breeding female prices. In contrast, the Canadian bred cow market was strong relative to calf prices during 2008-2011 with bred cow prices (+90%) growing faster than calf prices (+45%). Moisture conditions in Canada improved in 2010 after the 2009 drought. Stronger feeder prices and improved cow-calf profitability sparked interest in heifer retention and supported breeding female prices into 2012.

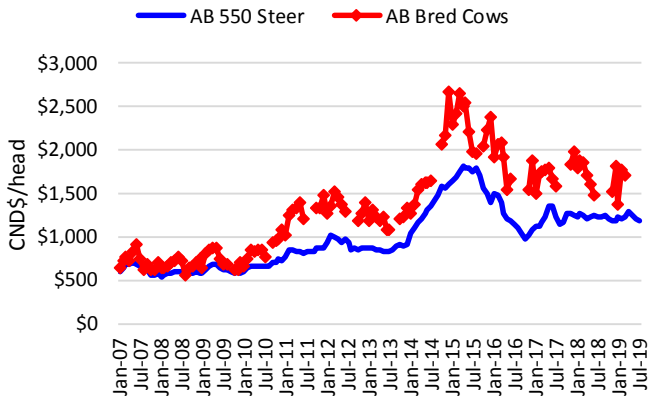
As weather conditions improved in 2013, and cattle prices skyrocketed to uncharted levels in 2014 and 2015 - the U.S. cattle sector saw rapid expansion through 2014 to 2018 supporting bred female prices on both sides of the border.

**Chart 9. Bred Cow as a % of Steer Calf Prices**




Source: Canfax, Cattlefax

**Chart 10. Alberta Bred Cows and Calf Prices**




Source: Canfax

In Canada, the price ratio trended upwards from 2014 to 2016 and eased lower in 2017 and 2018 (see Chart 9). Record high 2014 calf prices and a retracting cow herd in previous years all contributed to record high breeding stock prices in 2015. In addition, drought relief in the U.S. ramped up import demand for seed stock from Canadian. Strong grind demand also played a role as record high slaughter cow salvage values dramatically increased the base price for bred cows. From 2014 to 2015, Alberta bred cow prices were up 30% and calf prices were up 25%, resulting in a higher cow to calf price ratio. As the market cooled down in 2016, calf prices saw a sharper decline of 29% compared to 20% in bred cow prices, pushing the bred cow to calf ratio to the high of 152%. In contrast to the rapid expansion in the U.S., the Canadian cow herd remained steady after the price rally, partly due to dry conditions. Bred cow prices continued to drop in 2017 and 2018 by 7% while calf prices stabilized, which resulted in a lower bred cow to calf ratio.

The price relationship between calves and breeding females are affected by several factors such as weather, feed availability, profitability, trade conditions, slaughter cow prices, etc. While a rule of thumb may provide a general guideline for decision making on breeding female value, it should be emphasized that breeding stock is a long-term capital investment that not only depends on current calf prices or profit levels, but also the costs and returns over the animal's life. To determine the value of a breeding female, a producer can estimate the net present value (NPV) of the animal, based on the expectation on the calf market, maintenance costs, salvage value and production efficiency of the cow herd. For more information on NPV estimation, please refer to the CRS fact sheet – Focus on Productivity.

## BULL VALUE

*"2 times the value of a fat steer" or "4 to 5 times the value of a feeder calf"*
*Source: Cattlenetwork.com*

**Fact**

The value a bull provides depends on his individual performance, the environment (pasture productivity), management (cow to bull ratio) and markets (calf prices). With the large variation in bulls available, bull prices extend over a wide range from $3,000 to over $20,000 per head.

For more information on bull valuation, see the CRS Factsheet - Bull Valuation.

## COW AND LEAN TRIM PRICES

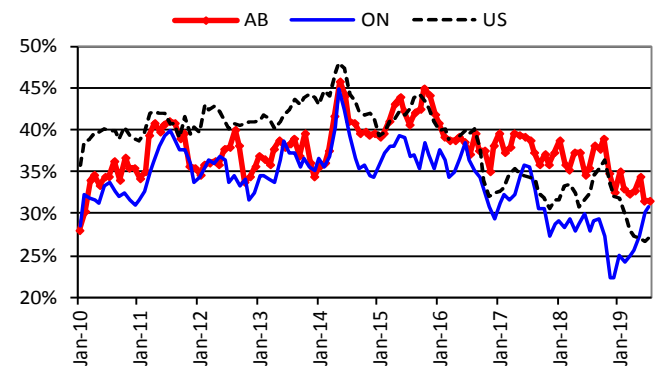
**Fact**

For 2014-2018, the five-year average cow to trim price ratio is at 39% in Alberta, 34% in Ontario and 38% in the U.S.

D2 cow prices are highly corelated with 85% boneless beef prices. They generally trend in the same direction with variations in the rate of changes which can be shown in a cow to trim price ratio (see Chart 11).

From 2010 to 2018, the cow-trim ratio in the U.S. (utility cow prices as a percentage of 85% trim prices) and Canada generally followed the same trend with a peak in 2014 (U.S. and Ontario) or 2015 (Alberta) and have moved lower since. Regionally, Albert has seen higher cow-trim ratio since mid-2016 with cow prices running at a premium to the U.S. and Ontario.

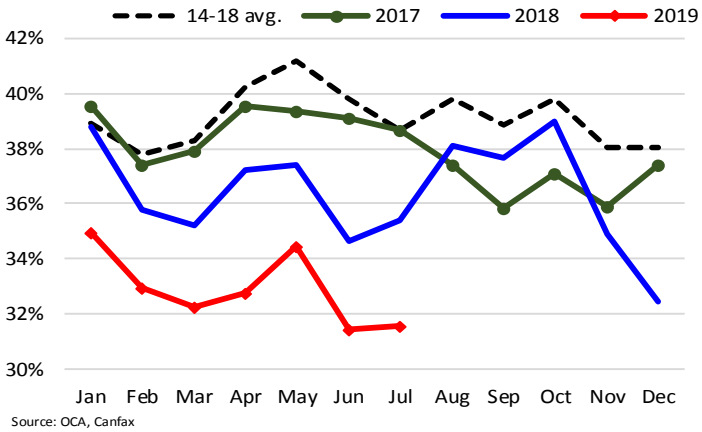
**Chart 11. Cow as a % of 85% Trim Prices**




Source: OCA, Canfax, USDA

The lower cow-trim ratios in recent years were driven by softer cow prices relative to lean trim prices. Increased cattle supplies as a result of herd expansion in the U.S. have been pressuring cow prices, and challenging packing capacity, especially in Ontario and the U.S. While packing capacity in Alberta has supported cow prices; producers in Ontario and the U.S. have seen significant leverage shift to the packer. Overall, lean trim prices have remained relatively strong with solid consumer demand and reduced non-NAFTA beef imports.

**Chart 12. AB D2 Cow as % of 85% Trim Prices**

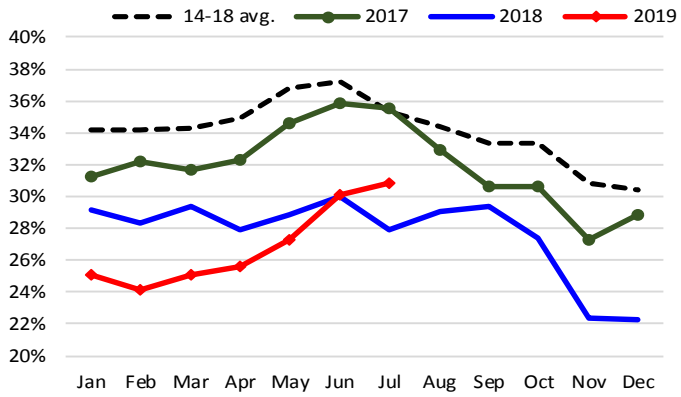



Source: OCA, Canfax

The changes in Alberta cow-trim ratio also has a seasonal pattern with an uptrend in the first quarter, peak in April to May follow by a downtrend in the second half of the year (Chart 12). An exception was 2018, with the peak occurring in the fall due to the steeper decline in trim prices from August to October caused by large cow slaughter and seasonally weak lean trim demand.

Ontario saw the similar long-term seasonal pattern with the 2018 ratio declining sharply in the fall due to weak cow prices (Chart 13).

**Chart 13. ON D2 Cow as % of 85% Trim Prices**




Source: OCA, Canfax

In January to July 2019, the Alberta cow-trim ratio averaged 33%. If the ratio seasonally drops in the fall to 30%, **a $10/cwt change in trim prices would indicate a $3/cwt change in cow prices** in the same direction. With trim prices at $273/cwt in July, and cow prices at $86/cwt, a $20/cwt decline in trim prices to $253/cwt, could bring cow price to around $75/cwt. While the cow-trim ratio and its seasonal pattern may provide some hints in general price trend, producer should also keep in mind annual changes in supply and demand.

## FEEDER AND FED PRICES

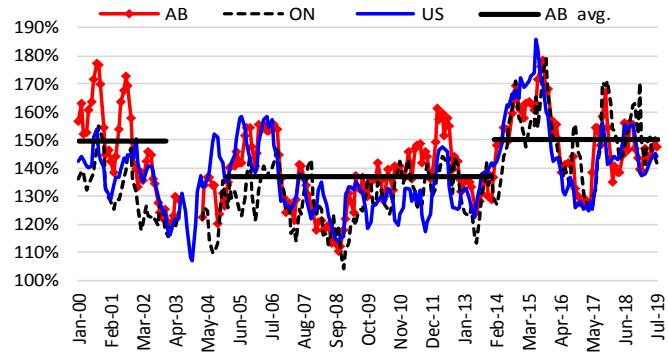
**Fact**

For 2014-2018, the five-year average 500lb steers to fed price ratio is at 150% in Alberta and Ontario and 149% in the U.S.; while the 850 lb steer to fed price ratio is at 124% in Alberta, 128% in Ontario and 122% in the U.S.

The 2000-2018 average for 500lb steers to fed (calf-fed) ratio have been similar in the three regions at 142% in Alberta, 136% in Ontario and 138% in the U.S., with a range from around 100% to above 180%. In the early 2000's before BSE, the Alberta ratios averaged at 150%, then eased to 137% during 2004-2013, and returned to 150% in 2014-2018 with strong cattle prices.

The 850 lb steer to fed ratio (yearling-fed) averaged 118% in Alberta, 118% in Ontario and 116% in the U.S., with a range from below 100% to 150% during 2000-2018. The overall trend was similar with the Alberta 500 lb steer to fed cattle ratio averaging 120% pre-BSE, 115% during 2004-2013, and 124% in 2014-2018.

**Chart 14. 550 lb Steer as a % of Fed Steer Prices**

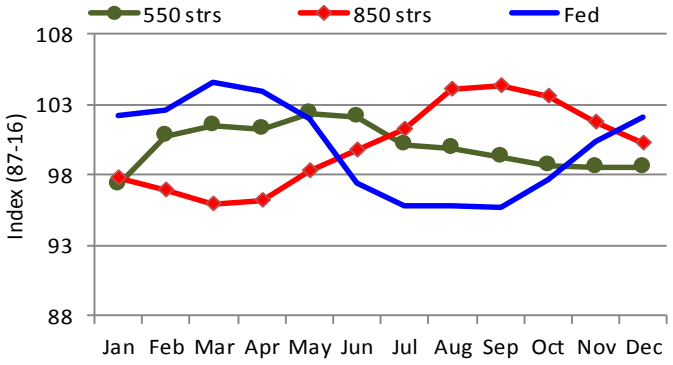



Source: Canfax, Cattlefax

The fundamentals of the feeder and fed price relationship is the supply and demand situation of the cattle and beef market, as well as feed grain prices. In 2014-2015 cattle supplies were extremely tight in North America after years of drought and liquidation. Meanwhile beef demand was strong domestically while China entered the global market in a big way supporting beef exports. The combination of tight supplies and strong demand pushed cattle prices of all categories to record highs, with feeder cattle posting the largest increase. This pushed the feeder-fed ratios to record high levels at 179-186% for calves and 143-154% for yearlings. The high replacement costs negatively affected feedlot profitability and feedlots' willingness to pay for feeder cattle. As the market cooled down in 2016 and rapid expansion in the U.S. increased cattle supplies, the ratios has moved lower in the past couple years. For 2014-2018, the five-year average calf-fed ratio is at 150% in Alberta and Ontario and 149% in the U.S.; while the yearling-fed ratio is at 124% in Alberta, 128% in Ontario and 122% in the U.S.

**Chart 15. Price Seasonality**

*1989-2018 avg.*

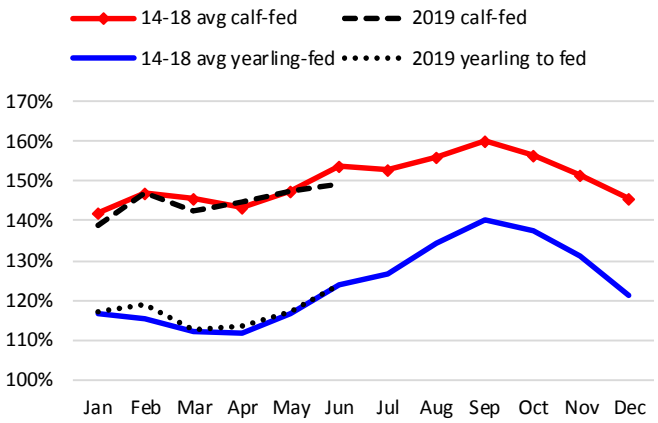



Source: Canfax

The seasonality of the fed and feeder prices (Chart 15) creates the seasonality of the feeder to fed price ratio (Chart 16). The ratio generally bottoms in March and April and increases through the summer to peak in August or September when yearling prices tend to peak.

In the first half of 2019, the ratios have been tracking along the typical seasonal pattern. If this trend continues in the second half of the year with the calf-fed and yearling-fed ratio peaking at 160% and 140%, a **$1 change in fed cattle prices would indicate a $1.60 change in calf prices and a $1.40 change in yearling prices**.

**Chart 16. Feeder to Fed Ratio Seasonality**




Source: Canfax

## CONCLUSION

Rules of thumb can be powerful tools to help make quick decisions. As the cattle market has undergone significant changes, some rules of thumb on cattle price relationships need to be updated to reflect the current market.

Cattle prices of different weight categories, gender, animal types and across market sectors are all linked. While price relationships might follow a certain pattern over a long-term, they are affected by changing market factors and have experienced dramatic swings when the market went through significant changes in price levels.

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