



## Canfax Research Services

*A Division of the Canadian Cattlemen's Association*

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# Who's Expanding? Factors to Consider

## INTRO

Record-high cow-calf margins, decreasing feed grain prices and strong consumer demand internationally are calling for expansion of the beef herd, but supply-side challenges remain. This fact sheet discusses: (1) where are we in the cattle cycle globally and domestically; (2) what factors impact producer decisions to expand or not; (3) options on how to expand; and (4) who will expand and when?

## THE CATTLE CYCLE

A typical cattle cycle runs ten to twelve years in length as the industry responds to market signals. However when market signals are mixed, highly uncertain or when outside forces such as trade barriers or drought occur the cattle cycle may be delayed or even reversed for a period of time. In addition the cattle cycle focuses on producers supply responses to changes in price, but consumer demand also influences prices. Therefore in years when the cycle is not apparent, it is not that it is not in play but that outside forces are temporarily limiting or having a larger influence on producer decisions; particularly changing consumer demand. As long as there is a price cycle there will be a cattle cycle.

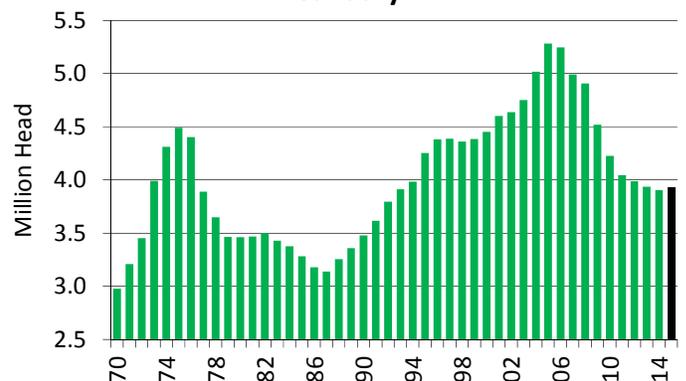
## A BRIEF HISTORY

Many factors have impacted the profitability of the cow/calf sector in Canada over the last decade. Following the boom expansion of the 1990s, western Canada was in severe drought in 2002 with cows being culled due to lack of feed. This was followed by BSE in May 2003 and the closure of the US border to live cattle and many other countries for beef. While market signals were telling producers to liquidate the herd a captive market resulted in cows being retained and the herd expanded. Over the years, market access has been re-gained starting

with under-30-month of age boneless access and working up to full access for over-30-months of age bone-in and offal product.

The beef cow herd peaked in 2005 and liquidation commenced. A rising exchange rate and record high feed costs in the first half of 2008 were followed by the global financial crisis and implementation of mandatory Country of Origin Labelling in the fall of 2008 reducing international consumer demand for beef. Recovery in the global economy has been slow, driven by growth outside of Europe and the United States primarily in Asian countries.

**Canadian Beef Cow Numbers  
January 1**



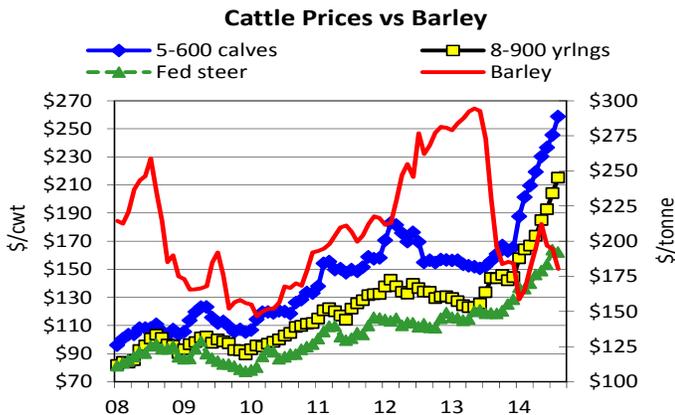
Source: Statistics Canada

In 2009, drought impacted large regions of Alberta and Saskatchewan where over 70% of Canada's beef cows reside. Almost continual drought in the mid-west and southern plains has created demand for hay increasing prices even into western Canada.

The herd was liquidated from 2006 through 2011. The peak of the liquidation occurred in 2009 with beef cow numbers declining 8.2%. As cattle numbers have declined across North America both feedlots and packing plants have closed. Notably in Western Canada were Natural Valley in June 2007, Ranchers Beef in August 2007, XL Moose Jaw April 2009, XL

Calgary in April 2011 and the Levinoff cow plant in June 2012.

Moving forward Asian demand will remain strong, as their economy grows and personal wealth increases.



As cattle prices started to improve, inventories stabilized between 2011 and 2014. However this period has not been without its difficulties either.

The XL Lakeside plant had the largest *E.coli* recall in Canadian history in September 2012 resulting in the plant temporarily closing and losing market access to many countries. This plant had changed ownership from Tyson to XL Foods in 2008 and was sold to JBS in January 2013. Change in ownership created uncertainty in the fed cattle market as procurement practices changed, which had ripple effects in the feeder market.

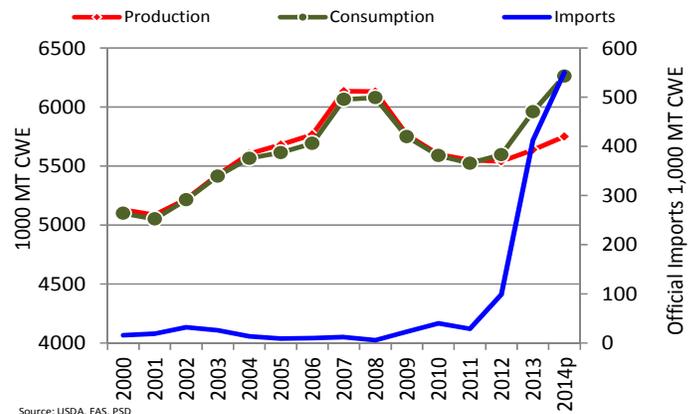
Most recently, flooding in Manitoba and Saskatchewan has impacted producers in 2013 and 2014.

The protein sectors have not only been impacted by shrinking supplies in North America but growing international demand. In 2008, before the global financial crisis global demand for proteins was on the rise with growing populations and disposable incomes particularly in Asian countries. While that demand was muted in the years following it came back with a vengeance in 2013.

### WHAT IS HAPPENING GLOBALLY?

In 2013, China entered the global beef trade in a big way, emerging as a major importer. As exporters shift to supply this market, opportunities have risen elsewhere as product is pulled from other markets.

### China Beef Disposition



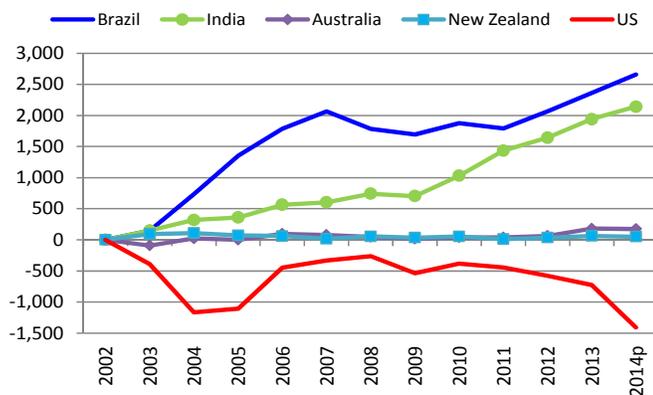
Global beef trade volumes have been impacted by higher feed grain prices (US, CAN), drought (US, Aus, NZ), and domestic demand (Brazil) over the past five years. Cattle prices globally jumped sharply higher in 2014, providing the market signal for producers around the world to expand. However, herd growth is expected to be slow in most countries.

Regardless of the country, most producers are older, ready to retire and are not interested in the additional labour required with expanding the herd. Competition for land remains strong and while feed grain prices are expected to be lower over the next five years, how many years of lower returns will a young grain producer need before they consider diversifying into beef cattle? Despite lower grain prices, higher yields mean that many grain producers will not see a drop in total revenue in 2013/14. Grain farmers are not currently looking at alternative sources of revenue. The grain outlook is for lower prices with replenished global ending stocks barring any major weather incident. This may mean that mixed operations may not look to get back into the beef business until 2016/17 or later.

There are growing supplies of ground beef coming from Brazil and India. Drought has forced liquidation of cows in Australia and New Zealand – adding to global supplies. Brazil, India and Australia have the potential to increase production through larger carcass weights and gaining efficiencies on grass.

This would not require expansion of their cow herd, but would require feed resources.

### Growth in beef production since 2002



Source: USDA, FAS, PSD

Estimated growth in Chinese beef imports surpasses all of these supply growth projections. Leaving opportunities for countries interested in expanding.

### WHERE ARE WE IN THE CANADIAN CATTLE CYCLE?

The beef industry is currently in the third year of the consolidation phase of the cattle cycle. During the consolidation phase some producers will be leaving the industry, while other producers expand their herds leaving a net zero change in the national number. Since 2012, the beef cow herd has been relatively steady declining zero to 1.5% annually. The consolidation phase typically lasts for 2-3 years, but is expected to be prolonged to 4-5 years due to numerous market factors.

Things that will prolong the consolidation phase include: producer age, higher input costs limiting profits, and greater risk aversion with equity losses over the last decade, a high level of volatility in the market place and greater profits in other commodities. In order to move from the consolidation to expansion cow/calf producers need to see profits that are competitive with producing other commodities and be confident that those profits will be maintained long enough to justify investing in bred heifers.

Despite higher calf prices in 2014 interest in bred heifers has been soft with heifer retention on July 1, 2014 down 3.5%. It is unlikely that heifer retention

will increase enough to stabilize the herd in the second half of the year, and record high cow prices continue to bring cows to market. This will result in an even smaller number on January 1, 2015. If expansion in the beef cow herd is not seen until year five (2016) there will be three years of larger calf numbers (2017-2019) contributing to two years (2018-2019) of larger production.

The expansion of the 1990s was driven by enhanced market access to the United States under the Canadian-US Trade Agreement of 1989 (CUSTA), and a low Canadian dollar supporting local cattle prices. Increased global demand from China could be the catalyst for the upcoming expansion. The difference this time around is that Canada is already an export dependent and exposed to the global price fluctuations. Overall the global beef market is more linked than 25 years ago.

### FACTORS TO CONSIDER

When thinking about cow herd expansion, it is important to note that no single factor drives an individual producer's decision to expand or reduce the size of their cow herd. Producers respond to a wide array of market signals and operate within a wide range of constraints. Below are some key factors that will impact producer decisions to expand their herds over the next few years.

#### Supply is About Pounds of Beef

It should also be remembered that with decreased feed costs and technology advancements larger carcass weights mean that every additional cow to the national herd produces that many more pounds of beef. Fewer cows will be needed in this expansion because carcass weights will amplify the additional beef cow numbers. Markets respond to supply and that means pounds of beef, not the number of cows.

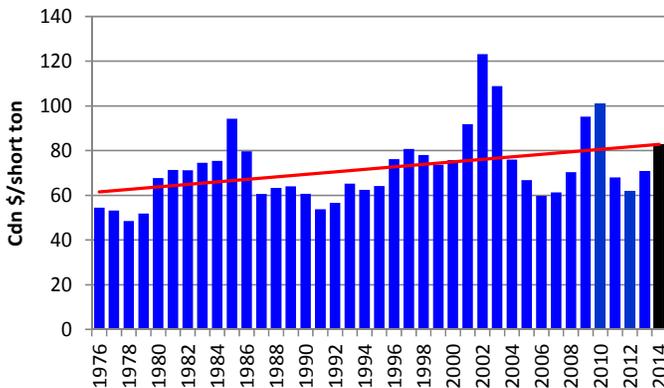
#### Expansion Occurs at the Cow-Calf Level

No infrastructure is built for the once in a lifetime crop. But it could be argued that with yield improvements larger grain production could become the norm in the future. The North American transport system struggled to perform last winter

with a much larger demand. While criticism and proposed solutions abound it will take time to implement anything. In the meantime, the grain industry is no longer talking about replenishing ending stocks, so much as what to do with record large carry over. Many analysts are projecting several years of lower grain prices. Lower feed costs will support cattle margins right at a time when global demand and tight supplies are heating up prices. Lower feed grain prices directly benefit the feedlot industry, but they tend to bid these lower feed prices into feeder cattle.

This should be obvious, but as industry points to lower feed grain prices we need to consider that for the cow/calf sector hay costs can have just as big an impact on winter feeding costs and margins. Yes, there are opportunities to substitute feed depending on price but Alberta hay prices have not come down in recent years. In fact, hay prices in the first half of 2014 at \$83/ton are 15% higher than the historic average.

Alberta Hay Prices



Source: Alberta Agriculture

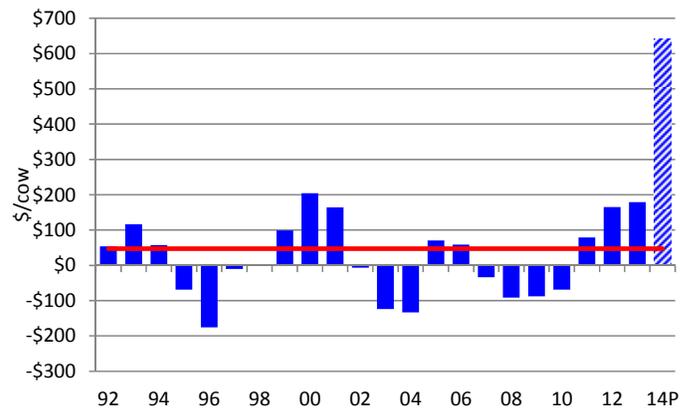
**Producer's Current Financial Situation**

The current consolidation phase has been longer than previous cycles as producers rebuild equity lost over the last decade. If credit is not readily available, cash flow becomes a limiting factor in production decisions. Particularly in the early years of herd expansion when the net cash flow of the existing beef herd is reduced as heifers are retained instead of sold. Not being able to cash flow an expansion may result in limited heifer retention and slow growth over the next several years.

**Producers Respond to Profits, Not Prices**

Often it is assumed that producers expand when prices reach a certain level, but this is an oversimplification. Prices don't tell us any more about profitability than one's income does about their financial status. Costs matter just as much. While it is true that calf and feeder cattle prices are at historically high levels, it is also true that production costs have also risen. In order for the market to send an expansionary signal to producers, it is not enough that prices rise. Prices must rise by enough to translate to increased profits at the cow-calf production level. That said cow/calf profitability in 2014 is projected to be the highest on record.

Alberta Cow/Calf Returns



Source: Canfax Research

**Greater Risk Requires Greater Returns**

Since breeding stock represent a long-term investment, producers expand with an expectation of a positive return on this investment. Just like any other investment, producers will compare this expected return to that of other investments. Producers will invest in their cow herd when the expected return reaches a suitable level for the amount of risk they perceive. Most producers perceive greater risk in livestock production now compared to 10-20 years ago, as they deal with global variability in both cattle and input prices and not just regional or national variability. Higher perceived risk means that producers are likely to have higher return requirements for the next expansion phase than they did the previous one.

High and volatile commodity prices for both inputs and outputs have meant **risk management** is increasingly important for the beef industry. Record high prices mean that more equity is on the line. While the percent change in cattle prices is in line with historic levels, the price level means that the dollars per head are much greater. **Price insurance** is now available in western Canada and may combat some of this; but producers need to remember that price insurance is just that - insurance against a disaster not a risk management plan for normal market movement.

In addition, producers are older. The average age of farm operators in Canada in 2011 was 54 years. These producers are not as interested in putting additional capital at risk when they are looking to slow down and enjoy retirement or semi-retirement on the farm. For those looking to get out, these high prices are attractive to cash in, not invest more.

#### Weather - Profits Don't Make Grass

Not only has there been loss of pasture to annual crops, weather has also impacted carrying capacity through drought or flooding. In some cases it has forced producers to sell off breeding stock and/or increased production costs for the remaining inventory by trucking in feed from other regions.

Drought has had a major impact in the US over the last five years, while flooding over the last three years in Manitoba and parts of Saskatchewan are having long term implications for the beef herds in those areas.

#### Competing with Other Land Uses

Since 2006, the market has illustrated a basic economic principle - units of production will be allocated to their most profitable use. As profitability of canola and other grains increased, marginal land that had not been cropped since the 1970s became increasingly attractive to grain producers. As a result, many of these acres were converted into annual crop production.

**It's Easier to Convert Pasture to Annual Crops than Vice-Versa.** Some have wondered that as grain prices decrease, will we see land convert back into

pasture? While many of these acres came out of pasture pretty quickly, we are not likely to see them return with comparable speed. Pastures can be plowed under or burned down, planted in canola, and harvested within a growing season. However, establishing a forage stand takes more time; establishment is risky in drier areas; and while grain prices are down yields have been tremendous. *How many years of poor prices will a grain farmer need before he turns to cattle?*

In addition, higher grain prices have translated into higher land rents (and land values). In many areas cattle production simply cannot compete. Land rents tend to be sticky and are unlikely to fall drastically in the next few years. Grain producers are still likely to be able to pay more than cattle producers, especially when re-establishment costs and yield improvements are considered.

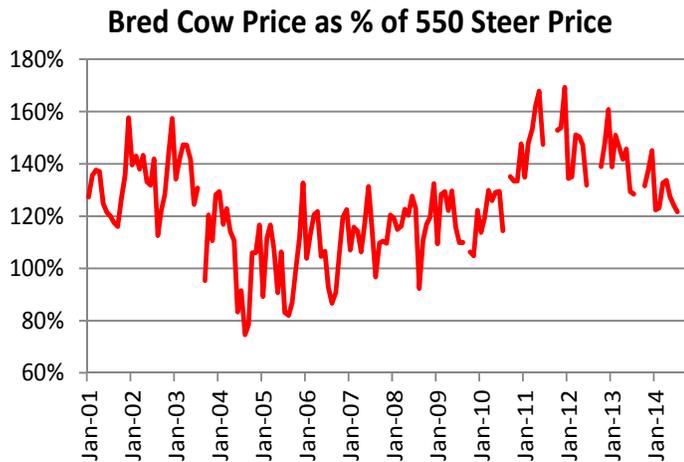
#### Infrastructure is an Issue

This potential for conversion is even more complicated when one considers capital investments required. As land was being converted from pasture to annual crop production, in some cases the fences were removed. Once those fences are gone, the cost of returning that land to pasture has been drastically increased. Much like breeding stock, fencing is an expensive, long term investment, that will only be made when investment in cattle and fencing is well justified by the market.

#### Breeding Stock is a Long-term Capital Investment

Too often we discuss cow-calf operations as though they make decisions year-to-year, when expansion decisions are a long-term decision. Cows are likely to remain in production for ten years or more. When a producer purchases bred heifers (or develops their own heifers), they make an investment that requires multiple years to pay back. Ultimately, breeding stock is an asset that requires a significant upfront cost, that yields a return over its productive life, and then has a salvage or cull value in the end. Producers make this investment anticipating a reasonable return over the course of that cow's productive life. So while current profit levels matter, it is long-term

profit expectations that really drive expansion decisions.



Source: Canfax

Managing expansion efforts with a focus on long-term profitability requires expectations on future calf prices. Alberta 550 lb steers have been trading around \$260/cwt in September 2014. From 2001 to 2014 bred cow values in Alberta have averaged 1.24 times the price of 550 lb steer calves to be around \$1,788 per head with current calf values. However, this has increased to be as much as 1.65 times the calf price during the expansion phase. This occurred as recently as 2011 and would put bred cow values around \$2,360 per head.

**Bred Cow price as % of steer calf**

550 lb Calf Price	Bred Cow at 1.25x	Bred Cow at 1.5x	Bred Cow at 1.65x
\$200	\$1,375	\$1,650	\$1,815
\$220	\$1,513	\$1,815	\$1,997
\$240	\$1,650	\$1,980	\$2,178
\$260	<b>\$1,788</b>	<b>\$2,145</b>	<b>\$2,360</b>
\$280	\$1,925	\$2,310	\$2,541
\$300	\$2,063	\$2,475	\$2,723

**Profit expectations tend to get "Bid-into" breeding stock values.** In addition to the overall strength of the cattle market, one must remember the capitalization of assets and breeding stock is an asset. Increased profit expectations get bid into replacement female values, as those females are likely to yield a greater positive cash flow over their productive lives.

Heifer calf values have the potential to stall expansion. As heifer prices increase the opportunity cost of not selling those heifers at weaning is that much higher.

**HOW TO EXPAND?**

High prices have many wondering if this is the right time for them to expand. There are multiple ways to expand ones herd. Developing a management plan for an expansion phase can help manage cash flow and anticipate additional requirements from a growing herd. Expansion can be done in a number of ways – as long as the number of heifers entering the herd is greater than the number of mature cows leaving the herd. This is possible with high or low culling rates as long as heifer retention is high.

**Purchasing or Developing Heifers**

For some, bred heifer prices are a little rich so they are considering developing their own. But this should not be done without considering the opportunity cost of not selling those heifer calves. When prices are high the opportunity cost of developing heifers versus selling them is equally expensive. The difference is purchasing heifers is a cash cost versus developing heifers which can be done with resources on hand.

**Buy Bred Females**

- Faster return on investment
- Depreciate the value of the bred female
- Introduce new genetics into your herd
- Flexibility in breeding/calving window
- Can avoid calving heifers

**Develop Heifers**

- Depreciate the development expenses
- Predictable genetic performance
- Flexibility as you build your program
- Marketability of bred heifers
- Reduces productive cowherd numbers
- Marketing calves from first calf heifers?
- Retaining ownership increases production risk

It should be recognized that retaining ownership and developing bred heifers' increases production risk. The animals you keep continue to grow in value as you invest more time and resources. Current high

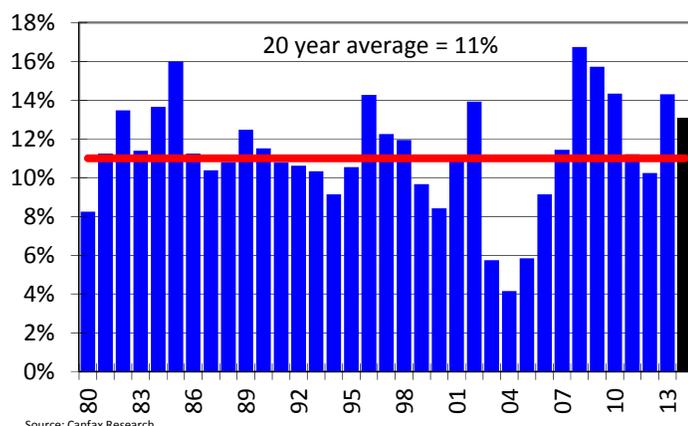
prices mean producers are exposed to large financial risk. Having a plan to market first, second and third cut heifers can address some of that risk. First cut occurs in the fall when determining which heifers to market and which to retain. Second cut can occur in the spring before the breeding season. If weights are targeted to prepare these heifers for breeding (around 750 lbs) they make ideal grazing or feedlot placements. Third cut can occur in the fall after pre-checking. Selling open heifers at an average target weight around 950 lbs can still hit the tail end of the yearling run.

For those looking to purchase bred heifers or cows, August is typically the low in the market. However, the bred heifer market has been extremely thin over the last eight years with no prices reported in most of the summer months. Prices then rally to make a high in December with prices staying strong throughout the first quarter.

### Retaining or Culling Cows?

While heifer retention gets a lot of attention dealing with expansion, another factor worth consideration is the impact of culling rates. Beef cow culling rates have been high in 2013 and 2014 at 14% and 13%. This is well above the long term average of 11%. High culling rates mean the industry needs that many more replacement heifers to even stabilize the herd. The Canadian beef industry knows all about expansion coming from cows. From 2003 to 2005 heifer retention dropped moderately, but cull cow numbers were even lower resulting in beef cow inventories increasing 10% in two short years.

Canadian Beef Cow Culling Rate



The most profitable females may already be on the ranch. This is an opportunity to give the underperforming cow another chance.

Retaining every moderately productive cow can make sense. Yes, cow prices are record high. But even an older cow that is costing you more to winter can make money given the current calf prices. This does hold risks, as many producers have experience with cows that were retained for that extra year and consequently never made it to market.

### WHO WILL EXPAND THE HERD?

So far it has been assumed that producers are willing and interested in expanding as long as market conditions are supportive. However, as noted above, producers in all major beef producing countries are **older** and not necessarily that interested in the additional work of expanding the herd.

In the past, price cycles for various commodities have encouraged diversification of production on mixed operations. However, many programs are now available that support producers who specialize in one commodity. *Will this discourage mixed operations from coming back to beef?*

### Labour & Technology

There is growing concern that fewer of the next generation are willing to take on the challenges and opportunities of raising cattle. First, it is a labour intensive job pulling a calf. This is no sitting in a tractor job. The grain industry has a lot of technology (e.g. auto-steer, GPS, contracting, hedging, etc.) that has made it attractive to a younger generation. It is not that the beef industry does not have technology; it just looks different (e.g. electric fence, solar water system, etc.). But in many ways technology in the cattle sector lags far behind the grain sector. **Technology can be improved** in many areas such as monitoring animals, herd health, cattle and forage genetics, risk management apps and even information flow.

For those who are interested in expanding, labour can be a challenge. And if you can find **labour**, what do you pay them? In western Canada finding skilled

people frequently requires competing with the oil and grain industry.

### Economics of Size

In addition, it is easier for grain farmers to get bigger. The additional management cost of renting land that is scattered and not adjacent is reasonably low. For a cattle operation, it takes almost the same amount of time to check on 25 cows compared to 100 cows if all in one location. Grain farmers only spend a few days on each parcel of land each year, while beef producers need to check water, mineral, and animal health regularly. This dynamic makes it difficult for cattle farmers to rent multiple tracks that are not contiguous. Consequently there are fewer young beef producers coming up through the ranks and a decrease in large tracks of land suitable for cattle will make it more difficult to expand the cattle herd in the future.

*What size of a cow herd is needed to be economically feasible? That is, how many cows are needed to support a family?* The long term trend has been towards larger herds to spread costs over and maintain quality of life. But higher calf prices and improved margins may mean the herd size needed to support a family will drop. This could make the beef industry more attractive for those who are interested in a smaller herd that can be supported while working full time. However, they will still face significant barriers to entry with high bred female prices.

### Land Location & Business Models

The widespread liquidation of the beef cow herd across Canada means there is un-utilized or under-utilized grass in almost every province that would not require land to be converted from existing uses. However, many of these acres are in remote regions. How many producers with young families want to live on **remote ranches**?

There has been notable investment in agricultural land in recent years. This has increased the amount of land available for rent. For the grain industry this has worked as young producers develop business models that work for creditors, renter and rentee.

For the beef business though historically a producer would buy land, pay the land mortgage in the good years and live on the equity in the bad years. How does increased rental land impact the **business model**? Lessons learnt in the grain sector could be helpful.

### WHY SLOW GROWTH?

High cow and trim prices will encourage culling rates above the historic average of 10-11%. The trim market is being driven by smaller imports as product goes to China and reduced cow slaughter in the US. This situation is not expected to change anytime soon.

Price premiums in the US are drawing cull cows south. This will require all of the herd growth to come from heifer retention. Calf prices in the fall of 2013 did not inspire expansion; breeding heifer numbers on January 1, 2014 were steady with year ago and still 9% below the long term average. As prices have increased in 2014 bred heifer prices are now so high that they are impractical for many producers given cash flow limitations. That means many will wait until the fall of 2014 to retain and develop heifers of their own. However, that represents a significant opportunity cost.

#### Encourage Expansion:

- Profitability for the cow/calf sector signaling expansion
- Lower grain prices over the next five years
- Global and domestic beef demand holding steady
- Higher cattle prices mean fewer cows are needed to support a family
- There are options to expand with cows or heifers
- More risk management options are available with price insurance
- Pasture is available in most provinces
- New technology and business models

#### Discourage Expansion:

- Larger carcass weights, mean fewer cows are needed
- High hay prices
- Still rebuilding equity
- Greater perceived risk
- Greater return required for exposure to greater risk
- Competing with grain for land
- High breeding stock prices
- Older producers
- Potentially greater production and export volumes from competitors
- Removal of fences and infrastructure
- Remote land locations
- High cost of labour

The decision to expand or not must be made on every individual operation as they determine why they want to expand.